ANNUAL REPORT

OF THE

CANAL COMMISSIONERS

OF THE

STATE OF NEW YORK.

TRANSMITTED TO THE LEGISLATURE JANUARY 5, 1865.

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No. 10.

IN ASSEMBLY,

January 5, 1865.

ANNUAL REPORT
OF THE CANAL COMMISSIONERS.

STATE OF NEW YORK:

CANAL COMMISSIONERS' OFFICE,
ALBANY, *December* 31, 1864.

To the Honorable

the Speaker of the Assembly:

The undersigned herewith transmit their respective reports, as Canal Commissioners, for the year 1864.

F. A. ALBERGER,

W. I. SKINNER,

B. F. BRUCE,

Canal Commissioners.

REPORT.

STATE OF NEW YORK:
CANAL COMMISSIONERS' OFFICE,
ALBANY, *November* 1, 1864.

To the Honorable the Legislature of the State of New York:

Pursuant to the provisions contained in the Revised Statutes, the Canal Commissioners submit their

ANNUAL REPORT.

The Board of Canal Commissioners, at the beginning of the present year, consisted of William W. Wright, President, whose term of office expired on the 31st of December, 1863; Franklin A. Alberger, Secretary, whose term of office expires on the 31st of December, 1864, and William I. Skinner, whose term of office will expire on the 31st of December, 1865.

On the first day of January last the Board consisted of Franklin A. Alberger, William I. Skinner and Benjamin F. Bruce. The Board was reorganized by the election of Franklin A. Alberger, President, and Benjamin F. Bruce, Secretary.

To William I. Skinner was assigned, in special charge, the Eastern division of the canals, which is made up as follows:

	Miles.
Erie canal, from Albany to the east bank of the Oneida Lake canal	136
Champlain canal	66
Glens Falls feeder	12
Pond above Troy dam	3
Black River canal, and Black River improvement	98
	315

To Benjamin F. Bruce was assigned, in special charge, the Middle division of the canals, which embraces the following:

	Miles.
Erie canal, from the east bank of the Oneida Lake canal to the county line between Seneca and Wayne counties, including the several feeders and reservoirs	76
Chenango canal, feeders and reservoirs	97
Oswego canal	38
Oneida Lake canal	7
Oneida River improvement	20
Seneca River towing path	5¾
Cayuga and Seneca canal	23
Cayuga inlet	2
Crooked Lake canal	8
Chemung canal	23
Chemung canal feeder	16
Seneca River improvement	12¼
	329

To Franklin A. Alberger was assigned, in special charge, the Western division of the canals, which embraces the following:

	Miles.
Erie canal, from the county line between Seneca and Wayne counties, to Buffalo, including the Main and Hamburg street canal, slips and basins at the latter place	155
Genesee Valley canal	118
Extension of Genesee Valley canal	7
	280
Total authorized canals	924

EASTERN DIVISION.

CANAL REPAIRS.

ERIE CANAL.

The Eastern division of the Erie canal commences at the south end of the Albany basin, and extends to the east bank of the Oneida Lake canal at Higginsville. It includes that part of the Champlain canal beginning at its junction with the Erie canal, and extending to the foot of the Mohawk river guard lock and all the feeders, dams, side cuts and structures connected with or located upon it.

It is divided into five superintendents or repair sections, which, since the twenty-sixth day of July last, have been in charge of Robert C. Dorn, superintendent, prior to which time Eli Casler had had charge from the twenty-sixth day of January, he having succeeded Elisha W. Hopkins in charge of sections numbers four and five.

SECTION No. 1—*Robert C. Dorn, Superintendent.*

This section extends from the south end of the Albany basin to the west end of the lower Mohawk aqueduct, and includes the Port Schuyler and West Troy side cuts, the Champlain canal from the junction to the Mohawk river, the Troy dam, sloop lock, and the pond above, making a total length of nineteen miles.

The structures upon this section are:

46 locks, including two weigh locks; 182 lock gates; 20 culverts; 10 road bridges, (wood); 11 road bridges, (iron); 11 farm bridges, (wood); 2 towing path bridges, (wood); 1 aqueduct; 6 waste weirs; 1 work shop, and two timber sheds.

The repairs of the section were, on the 29th day of February, let to Spencer Jackson, to take effect on the succeeding 4th of March, and to continue to the first day of January, 1867, at the rate of $39,900 per annum.

The Contracting Board in obedience to chapter 252, of the Laws of 1864, made an award to the contractor of seventy-two per cent in addition to the original contract price, as an equitable allowance for the greatly increased price of labor and mate-

rials necessary to the repair of the canal, making the annual compensation $68,628.00.

A temporary bridge has been erected on Auburn street, West Troy, for public convenience during the construction of the new iron bridge at that place.

The bottoms of locks numbers 6, 8 and 10 have been concreted and refloored, pursuant to a resolution of the Canal Board, at a cost of $10,844.61, chargeable to the fund for extraordinary repairs.

Extraordinary repairs.—The improvement of removing benches and bench walls, and substituting a vertical or slope wall, has been but partially completed. Sufficient, however, has been done to show the great good effects which will arise from it. The portion remaining of that contracted will be pressed forward during the winter and spring.

An alteration has been made in the bridge abutments at Port Schuyler and the adjacent towing path so as to allow the passage of teams under the bridge in towing in and out of the lock.

The iron bridge on Ferry street, in the city of Albany, is still incomplete, but will be built immediately after the close of navigation.

The West Troy side-cut bridges are complete with the exception of the side walk approaches. The Auburn street bridge, at West Troy, fell during the summer and has been replaced by a substantial iron structure, and the road bridge at Crescent has been rebuilt. The locks upon this section have been kept in good working order, the Troy dam has been wholly replanked and to a large extent retimbered, and is now in the best possible order, the State pier at West Troy was extensively repaired during the past winter, and many other substantial repairs have been made.

The usual number of men have been employed to assist in passing boats, preventing crowds, and as night patrols.

Repairs required.—The weigh-locks at West Troy and Albany should each be provided with a new scale. The present are much worn and constantly failing and are far from accurate.

Locks numbers 1, 3, 4, 5, 7, 9, 11, 14, 15, 16, 17 and 18, are in danger of giving away because of their leaky bottoms, they were built prior to 1842, and the bottoms were not concreted as is now the practice, they should undergo a thorough examination and those in most immediate danger be repaired, and as there is no appropriation for that purpose one must necessarily be made.

The Rexford Flats dam, extending across the river, designed to supercede the old wing dam at that place, was put under contract a year ago and has made but slow progress, but little has been commenced and none finished. It will be urged to as near completion as possible the coming season. It is a work of considerable importance, as it is hardly possible to maintain navigation without it.

Total amount paid repair contractor	$45,733 14
Total amount expended by superintendent for repairs	9,542 78
Total amount expended by superintendent for extraordinary repairs	20,977 39
Total	$76,253 31

Detailed Abstract of Expenditures on Section No. 1.

Structure or work.	Cost of new.	Repairs.	Totals.
Temporary bridge over canal	$207 54		$207 54
Assisting navigation, including breaking ice and night patrol and police			5,741 75
Sunken boat (paid by insurance company)			209 33
Regulating water for arsenal purposes			67 50
West Troy pier	2,604 43		2,604 43
Weigh masters and collectors offices, W. Troy		$40 75	40 75
Sheet piling near West Troy weigh-lock		198 86	198 86
Miscellaneous			472 62
			$9,542 78
Extraordinary Repairs.			
Cementing and planking bottom of locks 6, 8 and 10		10,844 61	10,844 61
			$20,387 39
⅛ of superintendent's salary and clerk hire			590 00
			$20,977 39

SECTION No. 2—*Robert C. Dorn, Superintendent.*

This section extends from the west end of the lower Mohawk aqueduct to the head of lock No. 27, and is thirty-two miles in length.

The structures on this section are:

18 locks—one guard lock; 1 work shop and timber shed; 1 dam; 19 culverts; 6 lock houses; 20 road bridges, (wood); 3 road bridges, (iron); 3 aqueducts; 2 waste weirs; 16 farm bridges; 2 towing path bridges.

The repairs of the section were let, February nineteenth, to Lewis Selye, at $14,500 per annum, to take effect from and after March fourth and to continue to January first, 1867.

The contract for the repairs of this section was abandoned by the contractor, pursuant to the provisions of chapter 252, of the Laws of 1864, and the repairs were contracted to John H. Woodin, until January 1, 1868, at the rate of $18,000 per annum, commencing on the first day of October instant. After the abandon-

ment of the contract the repairs were made by the State until the commencement of the new contract.

A floating bridge has been built at Cote's warehouse, near Rexford flats, so as to allow the passage of boats from and to the warehouse and dock. The abutments and approaches of the change bridge at that place have been completed.

Several lock gates have been replaced, and many other structures repaired, and the towing path has been gravelled in several places. Several bars which impeded navigation have been dredged out; snubbing posts have been set and some other improvements have been made.

Repairs to be made.—The bottoms of locks numbers 25 and 26 are in unsafe condition, and must be concreted and replanked. The timber docking on both sides of the canal, for two miles westward from Schenectady is in bad condition, and ought to be replaced by a vertical wall. The banks are high and are liable at any time to a serious breach. The Schenectady waste wier was filled with earth to prevent a breach, and as it is insecure should be immediately rebuilt. New bridges must be built at Fonda's and Kline's, and considerable repairs will be necessary to the Mohawk river aqueduct.

Breaches.—A boat belonging to the Fallbrook Coal Company through the carelessness of the boatman on the 14th day of August last, ran into the upper gates of lock No. 22, while a boat was passing into the lock, three lockgates were broken out and the boat which was passing into the lock was swamped by the rush of water. The necessary repairs were immediately made, and an action brought against the coal company for damages.

Total amount paid repair contractor	$18,135 91
do expended by Superintendent for repairs	10,065 69
do do do extraordinary repairs	10,853 47
Total	$39,055 07

Detailed Abstract of Expenditures on Section No. 2.

Structures or work.	New work.	Repairs.	Totals.
Lock gates	$1,174 46	$498 62	$1,673 08
Locks	.....	91 00	91 00
Lock tending	.....	.....	2,903 84
Oil for locks	.....	.....	72 00
Farm bridges, (wood)	.....	450 00	450 00
Road bridges, (wood)	.....	153 55	153 55
Repairing and graveling towing path	.....	1,505 83	1,505 83
Breaking ice and assisting boats	.....	.....	740 50
Assisting navigation	.....	.....	170 00
Dredging out bars	.....	.....	132 00
Snubbing posts	127 50	.....	127 50
Bottoming out	.....	99 43	99 43
Sunken boat, paid by Coal Company	.....	.....	313 78
Miscellaneous	.....	.....	1,633 18
			$10,065 69

Extraordinary Repairs.

New float bridge at Rexford Flats.....	$590 00	
Completing docking and abutments.....	207 78	$797 78
		$10,853 47
By superintendent's salary and clerk hire.....		590 00
		$11,453 47

SECTION No. 3—*Robert C. Dorn, Superintendent.*

This section extends from the head of lock No. 27 to the foot of lock No. 34, and is thirty-seven miles in length.

The structures embraced on this section are:

14 lift locks; 3 guard locks; 10 aqueducts; 29 culverts; 5 waste weirs; 31 farm bridges; 18 road bridges, (wood;) 6 road bridges, (iron;) 1 wire suspension foot bridge at Fort Plain; 2 dams; 2 work shops, and 3 lock houses.

The repairs of this section for the past year, have been made by the superintendent. The amount of damage done by the freshet of July twentieth, 1863, was so great that it was deemed imprudent to place the section in the hands of a repair contractor, until the section was put in most thorough repair. It has been placed under contract to Van Slyck and Neff, commencing on the first day of October, and continuing to the first day of January, 1868, at the rate of $16,780.00 per annum.

A new bridge has been put up at Vrooman's, near Canajoharie, and one with an iron chord has been built at Cox's, near St. Johnsville.

In accordance with a special act of Legislature, a stone sewer or drain has been built through the village of Canajoharie, for the protection of the buildings from the leakage of the canal.

A timber dam has been built across the Schoharie creek, at Fort Hunter, pursuant to a resolution of the Canal Board, at a cost of $44,502.27, of this amount $29,787.46 is chargeable to the fund for extraordinary repairs.

The price of materials and the scarcity of laborers has so increased during the past two years, that the cost of constructing the new dam has been very large, and the quantity of material was necessarily very large from the peculiar style in which it was constructed of layers of timbers lying side by side in courses one above an other, running considerable distance back.

The stone dam at Schoharie creek was completed in December 1862, and in February 1863, the stream broke up the ice and bore away a large portion of the dam, and in the following sum-

mer a majority of that remaining was swept out. During the past summer a "tree dam with stone abutments has been constructed. The trees of which the dam is composed are from seventy to ninety feet in height, and have as much of the brushy tops left upon them as possible, they are laid side by side with the buts down stream, in courses extending from one side of the stream to the other. The courses as they rise in height fall back eight or nine feet and are spiked with ragged bolts to squared cross timbers or stringers, and the brushy tops are loaded down with loose stone and gravel. The top course is of squared timber, forming a kind of coping or finish to the whole work. The expense of maintaining this dam has always been great, and heretofore no dam has been able to resist this most violent of streams. All who have seen the dam now just finished, think that it will be able to resist the stream under any and all circumstances, and it has been the endeavor of all connected with its construction to make it in the strongest, and most durable way; it will without doubt, be maintained in the future with very little expense.

The bottom of the canal at Big Nose has been concreted to stop the leakage of water through the rock upon which the canal is built. A large number of new lock gates have been put in with the new combination valve of wood and iron which is everywhere successful and is much more durable than the old. The prism of the canal at Canajoharie has been widened by the removal of the bench and slope wall and construction of *a vertical* wall on the towing path side. The canal was so narrow that boats frequently became crowded and often made considerable delay. The guard lock at Schoharie-creek feeder was raised and relaid, together with portions of the lock walls, and the lock gates were put in thorough repair before the opening of navigation.

The aqueducts upon the section were in very unsafe condition from the freshets which had swept over this section of the country during the season previous, and the outlay of moneys was necessarily very large. The aqueduct at Fort Plain was undermined and had settled considerably. It was hurriedly repaired at the time in order to keep up navigation; this spring it was thoroughly overhauled, retimbered, replanked and concreted and the fallen abutments and masonry relaid. A large portion of one side of the Schoharie-creek aqueduct was rebuilt,

and the aqueducts at Canajoharie, Yates, Sprakers, Printup's and Lashers largely repaired.

Piles have been driven at Fort Plain and Printup's aqueducts for their greater protection. and the foundation and bottom of the wasteweir at Port Jackson were replanked.

The culverts on the Rocky Rift feeder had become partially undermined and were repaired by filling the holes with brush and stone. The towing path was raised to proper height and graveled the whole length of the section, and the feeder banks were also raised. The canal bottom and creek channels were cleared of the debris brought in by the freshets during the previous season, and the channel of Lasher's creek, near the aqueduct, was straightened and the aqueduct protected from the washing of the stream by a slope wall. A temporary dam has been maintained during the whole season at Schoharie creek by sunken cribs of timber loaded with brush and stone. The dam at Rocky Rifts feeder was repaired and flush boards maintained the entire season.

Structures requiring repair.—The bottoms of locks 30 and 32 should be replanked and concreted as there is at all times danger of their failing and materially hindering navigation. This, with the construction of a few new lock gates and the usual amount of other small repairs will place this section in very fine order.

Breaches.—In the evening of 18th July, a breach occurred on the fourteen-mile level, near Sprakers, caused by the boring of a muskrat. It was repaired by the evening of the 20th, though navigation was delayed a longer period by the great scarcity of water at that time.

Total amount paid repair contractor	$280 35
Total amount expended by superintendent for repairs	101,100 02
Total amount expended by superintendent for extraordinary repairs	29,787 46
	$131,167 83

Detailed Abstract of Expenditures on Section No. 3.

Structures or work	Extraordinary.	New.	Repairs.	Totals.
Locks	.....	.....	$3,853 28	$3,853 28
Lock tending	.....	.....	.....	6,374 56
Oil for locks	.....	.....	.....	139 04
Lock gates	.....	$6,267 80	2,589 00	8,856 80
Aqueducts	.....	.....	18,030 37	18,030 37
Waste weirs	.....	.....	348 12	348 12
Culverts	.....	.....	420 85	420 85
Farm bridges, wood	.....	1,629 33	708 55	2,337 88
Road bridges, wood	.....	1,706 27	1,621 93	3,328 20
Road bridges, iron	.....	.....	1,020 88	1,020 88
Tow path bridge	.....	.....	167 72	167 72
Ice breakers	.....	.....	9 15	9 15

Lock houses			$21 53	$21 53
Repairing and graveling tow path			7,922 37	7,922 37
Repairing feeder banks			263 00	263 00
Bottoming out			3,330 16	3,330 16
Cleaning out creeks			2,095 20	2,095 20
Feeder dams	$29,787 46	14,714 84	5,222 14	19,936 95
Slope wall		722 12	10 00	732 12
Docking		2,346 59	279 00	2,625 59
Repairs of breach			1,537 05	1,537 05
Breaking ice and assisting boats in consequence				1,636 31
Repairs to apron at Castle creek			136 70	136 70
Repairs to and rais'g b'dge approaches			148 25	148 25
Dredging out bars			600 50	600 50
Snubbing posts		199 68		199 68
Repairing leaks at Fort Plain			285 07	285 07
Concreting bottom at Big Nose			382 12	382 12
State timber placed in schedule				3,087 72
Assisting navigation				2,280 32
Miscellaneous				8,998 53
	$29,787 46			$101,100 02
				29,787 46
				$130,887 48
½ of superintendent's salary and clerk hire				590 00
				$131,477 48

SECTION No. 4—*Robert C. Dorn, Superintendent.*

This section extends from the foot of lock No. 34 to the head of lock No. 45, and is twenty-one miles in length.

The following are the structures upon this section:

24 locks—1 guard lock; 196 lock gates; 4 aqueducts; 7 waste weirs; 10 culverts; 24 farm bridges, (wood;) 11 road bridges, (wood;) 2 road bridges, (iron;) 1 tow path bridge, (wood;) 1 draw bridge, (wood;) 1 swing bridge, (wood;) 1 dam; 1 feeder with bulkhead; 2 feeders with guard locks; 8 lock houses; 2 work shops; 12 watch houses; 1 collector's office.

The contract for the repairs of this section was let to John T. Hosch and Liberty L. Lowell, at $12,780 per annum. The contract will expire January 1st, 1867. This contract for the repairs of this section was abandoned under authority of act, chapter 252, of the Laws of 1864, and the repairs were assumed by the State, through the superintendent, until 1st October, when the work of repairs was contracted to Samuel F. Case from that time until 1st January, 1868, at the rate of $22,900 per annum.

New structures.—Seven new lock gates have been put in locks Nos. 38, 40, 41 and 44, and seventeen new combination valves. A new road bridge at Frankfort was constructed. New docking has been put up at Castle creek and at locks 34 to 40 inclusive. Two mitre sills have been put in lock 44; a new bridge over the waste weir at the head of lock 41, and four new lock bridges have been constructed.

A road bridge, with iron chord, has been put up at Mohawk, and another, a farm bridge, just east of Ilion.

The improvement of the " old feeder at Little Falls " has been completed, and is of great service to navigation and to the mill owners at that place.

Considerable repairs have been made to the docking at Castle creek. The Ilion aqueduct has been re-floored and almost entirely re-timbered; considerable repairs have been made to the bridges and other structures. The bottom of lock No. 44 has been repaired temporarily, but must again be overhauled.

A new bridge is building at Frankfort, and two farm bridges in the same vicinity have been built.

Repairs required.—The repairs upon this section will be but slight, with the exception of the bottom of lock No. 45, which must be concreted and re-planked.

Detentions to navigation.—The stone arch over the new feeder just above the State line, fell into the canal feeder near the opening of navigation, May 4th, and caused a detention of twenty-one hours.

June 6th the vertical wall at the foot of lock No. 45 fell into the canal and caused a detention to navigation of sixteen hours. June 23, 5, 6, a detention occurred at the same place of thirty-one hours, caused by the failing of the lock bottom, and on 29th June the water was withdrawn for nine days from the same cause.

Amount paid repair contractor	$18,810 52
do expended by superintendent	11,006 12
Total	$29,816 64

Detailed Abstract of Expenditures on Section No. 4 for August and September, 1864.

Structures or work	New.	Repairs.	Total.
Locks	.....	$813 62	$813 62
Lock tending	.....	.....	3,843 50
Oil for locks	.....	.....	96 00
Lock gates	$1,533 14	1,007 09	2,540 23
Waste weirs	.....	118 25	118 25
Culverts	.....	75 50	75 50
Road and farm bridges (wood)	128 50	546 21	674 71
Towpath bridges	.....	103 82	103 82
Lock houses	.....	18 00	18 00
Slope and vertical wall	.....	112 00	112 00
Docking	1,272 35	.....	1,272 35
Watching canal	.....	.....	91 50
Repairing and graveling towpath	.....	261 06	261 06
Miscellaneous	.....	.....	900 58
			$10,921 12
Superintendent's salary and clerk hire			85 00
			$11,006 12

SECTION No. 5—*R. C. Dorn, Superintendent.*

This section extends from the head of lock No. 45 to the east bank of the Oneida Lake canal, at Higginsville, a distance of thirty-four miles. The structures upon this section are as follows: 2 locks, 8 lock gates, 1 weigh-lock, 4 aqueducts, 29 culverts, 4 waste weirs, 23 farm bridges (wood), 6 farm bridges (iron), 18 road bridges (wood), 18 road bridges (iron), 1 towing path bridge, 2 foot bridges (wood), 1 foot bridge (iron), 2 lock houses, 2 work shops, 1 watch house, 5 store houses, 2 timber sheds, 2 dams, 1 collector's office, Utica.

The contract for the repairs of this section was, at the expiration of the former contract, let to Philip Corkings at the rate of $4,483 per annum from 4th March, 1863, to 1st January, 1867. The contract was abandoned by the contractor pursuant to the provisions of chapter 252 of the Laws of 1864, and was again let to E. H. French at the rate of $12,000 per annum, commencing October 1st and continuing to January 1st, 1868.

A portion of the vertical wall around the Utica weigh-lock has been taken down and re-laid three feet deeper than formerly, stopping the leak through the lock bottom, which caused so much trouble last year.

An iron culvert, three feet in diameter, has been put in as a continuance of the Broadway sewer under the canal at Utica.

The Bridenbecker road at Frankfort is in progress of construction, and when finished will fully suit those using it.

The vertical wall near City Mills, Utica, has been completed, and is a valuable and lasting improvement. The bridge over the big basin at Utica has been raised to correspond with the other bridges at that place.

The timber docking, as recommended in the report of last year, has been constructed on the berm side of the canal west of the freight depot of the Rome, Watertown & Ogdensburgh railroad company at Rome. It is 1,104 ft. in length, and is designed to accommodate the largely increasing business of that road with the canals.

Total amount paid repair contractor	$15,567 14
Total expended by superintendent	6,028 81
	$21,596 95

Detailed Abstract of Expenditures on Section No. 5, for August and September, 1864.

Structure or work.	Repairs.	Total.
Locks	$162 20	$162 20
Lock tending	.....	320 00
Oil for lock	.....	8 00
Lock gates	30 19	30 19
Weigh lock at Utica	239 48	239 48
Farm bridges (wood)	783 54	783 54
Road do do	798 24	798 24
do do (iron)	551 04	551 04
Tow path bridges (wood)	97 29	97 29
Slope wall	194 25	194 25
Locking	318 09	318 09
Raising and repairing bridge approaches	270 75	270 75
Repairing and graveling towing path	1,628 80	1,628 80
Miscellaneous	541 94	541 94
		$5,943 81
Superintendent's salary and clerk hire		85 00
		$6,028 81

The following are the amounts expended on the Eastern Division of the Erie canal for a series of years past.

YEAR.	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Total.
1851	$74,632 71	$27,317 17	$40,073 38	$30,451 95	$26,937 64	$23,289 89	$222,702 54
1852	136,016 49	47,858 59	51,651 16	35,904 45	33,288 04	24,171 07	328,889 80
1853	101,124 60	32,101 88	44,403 64	33,128 69	29,602 41	35,803 29	276,164 51
1854	75,298 10	42,256 86	61,674 97	46,187 95	29,099 71	44,120 44	282,642 82
1855	57,875 36	63,016 64	76,597 47	42,361 22	32,354 39	28,125 13	300,330 21
1856	42,954 22	27,181 56	49,232 00	44,436 55	40,147 81	24,489 52	228,441 66
1857	46,113 36	17,953 21	21,990 18	35,598 80	29,922 29	14,291 32	165,869 16
1858	46,630 34	28,398 85	25,876 28	35,831 81	27,260 04	.....	163,997 32
1859	102,000 64	26,166 15	37,766 71	26,969 66	22,842 36	.....	215,745 52
1860	41,054 96	25,551 84	13,611 45	10,679 26	19,417 25	.....	110,314 76
1861	41,797 56	20,261 52	14,598 23	13,444 52	10,177 80	.....	100,279 63
1862	40,879 98	20,365 37	20,672 18	16,187 01	10,975 99	.....	109,080 53
1863	43,744 56	25,246 02	47,505 71	20,960 89	11,413 74	.....	148,870 92
1864	55,490 92	28,769 27	102,167 73	31,491 76	23,874 36	.....	241,794 04

CHAMPLAIN CANAL.

This canal, commencing at the foot of the guard lock, on the Mohawk river, and extending to Whitehall, including the Glens Falls feeder, is divided into three superintendent's or repair sections. The whole length of the canal is about seventy-six miles.

The repairs of this canal were in charge of Joseph McFarland until 27th January, 1864, when Alonson Welch was appointed superintendent in charge of section number one, and James H. Sherrill in charge of sections number two and three.

SECTION No. 1.—*Alonson Welch, Superintendent.*

This section extends from the south end of the guard lock at

Cohoes, to the south end of the first lock north of Fort Miller bridge, and is twenty-eight miles in length.

The contract for the repairs of this section was let to Archibald McArthur, for the term of four and one-fourth years, at the rate of $13,848 per annum, from October 1st, 1863, and was abandoned on the first day of August, 1864, pursuant to act, chapter 252, Laws of 1864.

The section was relet to Samuel G. Hart, at the rate of $25,800 per annum, commencing 1st October, 1864, and continuing to 1st January, 1868.

The structures upon the section are: 12 locks, 1 weigh lock, 1 aqueduct, 11 waste weirs, 8 culverts, 2 work shops, 1 lock house and collector's office, 1 timber shed, 2 dams (one across Hudson and one across Mohawk river), 1 watch house and collector's office. 5 foot bridges, 2 bridges at Waterford, 1 store house, 36 farm bridges, 28 road bridges, 7 towing path bridges, 7 lock houses, 1 watch house.

New Structures.—New bridges have been built on the three and three-fourths and sixteen mile levels at Slade's and McDanol's, and a foot bridge at the Cohoes guard lock. The bridges at Dempsey's, Arnold's, Chase's, Wilson's, Johnson's, Hewet's and Marshall's have been raised with their approaches.

The road bridges at Stillwater, Wilbur's basin, Mechanicsville and Waterford have been repaired, and a new abutment built at Wilbur's basin road-bridge.

The Mohawk river dam has also received considerable repairs. The Broad and Division street bridges and abutments at Waterford have been raised two feet.

The waste weirs at Wilbur's basin, Stillwater and Mechanicsville have been considerably repaired. New mitre sills have been put in Flynn's lock and some few repairs have been made to the Schuylerville aqueduct.

The prism of the canal has been widened in several places and the docking and slope wall taken up and relaid.

The docking in the Mohawk and Hudson rivers has been thoroughly repaired and the feeder around the Cohoes locks has been taken up and reconstructed of a size sufficient to remedy the evil caused by the overflow of the water about the lock.

Repairs required.—Denning's, Hall's, Hogeman's, Van Slyck's, Best's, Smith's, Chase's and Johnson's farm bridges, and the three bridges at Mechanicsville, will all have to be thoroughly

repaired. The Hudson river and Mohawk river dams, and the docking at those places, and at the Schuylerville and Waterford basins will also require considerable repair.

New lock houses are needed at locks 2, 9 and 11, and all the old require, more or less, repairs. More ample feeders are needed at the Mohawk and Hudson river locks. The towing path should be raised in several places and the sand embankment at Coeville should be made secure, and the Schuylerville aqueduct should be quite largely repaired.

Total amount paid repair contractors	$16,014 10
Amount expended by superintendent for repairs	9,317 58
" " " extraordinary repairs	8,268 27
Total	$33,699 95

Structures or works, &c.	Cost of new structures.	Cost of repairs of old, &c.	Total new and old.
Locks	$2,405 82	.....	$2,405 82
Lock tending (exclusive of oil)	.....	$1,646 24	1,646 24
Oil for locks	.....	23 86	23 86
Lock gates	350 00	373 00	723 00
Aqueducts	.....	354 50	354 50
Waste weirs	1,321 96	.....	1,321 96
Farm bridges (wood) and approaches	819 50	367 29	1,186 79
Road bridges (wood) stone abutment	568 07	184 50	752 57
Tow path bridges (wood) waste weir	.....	155 75	155 75
Under water excavating by dredging	538 75	.....	538 75
Widening prism canal	2,610 29	.....	2,610 29
Raising and repairing tow path and berm bank, not including repairs to slope walls	.....	901 50	901 50
Dams	397 95	293 75	691 70
Slope wall	987 12	128 75	1,115 87
Docking	1,084 50	600 00	1,684 50
Snubbing posts	295 75	.....	295 75
Watching canal	.....	116 25	116 26
Unexpended accounts paid by me accruing September	.....	25 52	25 52
Other miscellaneous expenditures	.....	228 57	228 57
	$11,379 71	$5,399 48	$16,779 19
			566 64
			240 00
			$17,585 83

SECTION NO. 2—*James H. Sherrill, Superintendent.*

This section extends from the south end of the first lock north of Fort Miller bridge to Dunham's basin, and includes the Glens Falls feeder and pond above, in all twenty-four miles in length.

The repairs of this section were let to Anson Bangs for the term of five years, commencing August 1st, 1860, for the sum of $9,300 per annum, and by him assigned to Harvey Church, and were afterwards, on the 1st day of August, 1864, abandoned under the provisions of act, chapter 252 of the Laws of 1864, and relet to the same contractor at the rate of $19,400 per annum, commencing 1st October, 1864, and continuing to 1st January, 1868.

Upon this section the structures are as follows:

19 locks; 7 waste weirs; 19 farm bridges; 3 towing path bridges; 1 work shop; 1 dam across the Hudson river, 900 feet long; 3 aqueducts; 9 culverts; 17 road bridges; 10 lock houses; 1 store house.

Fort Edward lock is in progress of construction, and will be completed by the opening of navigation. It has a new location which will remedy the difficulty of entrance which exists in the old, which lock will be used as a feeder lock to gauge the quantity of water passed down the canal.

The sluice on the Glens Falls feeder around the two combined locks, has been increased in capacity, and now affords a larger supply of water. The dam at the head of the feeder has been strengthened and the towing path has been repaired over the whole section. A new breast wall has been built at the head of lock number eleven, and the masonry at locks numbers 4, 5 and 9 has been dressed down in the chamber of the locks, to allow the passage of larger boats. Additional snubbing posts have been set near many of the locks.

The Moseskill aqueduct has been propped up and supported by timbers and some other repairs made to it.

Brown's and Taylor's bridges have been rebuilt, and repairs have been made to Geer's, Black's, Sutfin's, Slocum's, Cheeney's, Gallucia's, Payne's and other farm bridges, and to the Saratoga, Cunningham's, Glens Falls and other road bridges.

The docking on the 1, 3 and 5-mile levels has been repaired and in some places renewed.

A change bridge has been built at Fort Edward, and various repairs have been made to the Fort Miller and other towpath bridges. The slope wall along the Glens Falls feeder has been slightly repaired, and the prism of the canal in its narrowest places has been increased. The 1 and 3-mile level waste weirs have been repaired in a thorough manner, and the lock gates on the Glens Falls feeder and the main canal have from time to time received considerable repair.

Repairs required—Moseskill lock should be immediately rebuilt of such increased size as to pass with ease the largest class boats.

The Dunham's basin waste weirs should be rebuilt during the winter. Cunningham's and Lincoln's road bridges, Holman and Slocum's farm bridges require new superstructures, and many road and farm bridges require thorough repairs.

The channel of the canal at the head of lock number 14 Glens Falls feeder, should be dredged out, increasing the width as it is now inconveniently narrow.

The lock houses and state shops require some repairs. Several of the lock bottoms of the Glens Falls feeder must be concreted before navigation, and the sluices around them be repaired. There are still several leaks in the feeder which were not stopped by the contractor, because of the abandonment of the contract by the State, on account of the exhaustion of the appropriation for that purpose.

Total amount paid repair contractor	$9,945 61
do do expended by Superintendent	11,287 18
Total	$21,232 79

Structures or works, &c.	Cost of new structures.	Cost of repairs of old, &c.	Total new and old.
Locks	$1,281 54	.....	$1,281 54
Lock tending (exclusive of oil)	.....	$1,542 25	1,542 25
Oil for locks	.....	36 00	36 00
Lock gates	968 90	316 26	1,285 16
Aqueducts	217 23	.....	217 23
Waste weirs	160 00	10 00	170 00
Farm bridges (wood) and approaches	746 67	321 25	1,067 92
Road bridges (wood)	.....	106 00	106 00
Tow path bridges (wood)	.....	166 06	166 06
Work shops	80 23	.....	80 23
Mowing eel grass in G. F. feeder	.....	99 00	99 00
Stopping leaks in G. F. feeder	714 27	.....	714 27
Raising and repairing tow path and berm bank	330 40	765 12	1,095 52
Dams (feet)	302 63	508,13	810 16
Slope wall	.....	190 75	190 75
Docking	905 52	400 00	1,305 52
Watching canal	.....	122 00	122 00
Other miscellaneous expenditures	.....	615 07	615 07
Measuring boats at Fort Edward	.....	382 50	382 50
	$5,706 79	$5,580 39	$11,287 18

SECTION NO. 3—*James H. Sherrill, Superintendent.*

This section extends from Dunham's basin to Whitehall, a distance of twenty-two miles. The repairs of this section were let July 14, to take effect August 1, to Henry D. Denison, for $7,500 per annum, to continue until January first, 1867. The Contracting Board of the State of New York, by authority of act, chapter 252 of the Laws of 1864, added sixty per centum to the contract price of the repairs of this section, making the annual compensation of the contractor $12,000.

The following are the structures upon it:

8 locks, 3 culverts, 5 waste weirs, 7 road bridges, 20 farm bridges, 4 towing path bridges, 5 small dams on Wood creek, 4 lock houses.

Repairs.—The road bridges, abutments and approaches at Com-

stock's Landing, Whitehall, Smith's Basin and Brayton's, have been raised. and the farm bridges at Kibby's, Empy's, Brown's, Manville's, Adams' and others have been raised.

The dams on Wood creek have been repaired and are generally secure, the banks have been protected by rip rap wall to prevent the undermining of the dam.

An additional number of snubbing posts have been put on Wood creek for greater protection to boats in high water.

Repairs required.—The channel of Wood creek will require quite an amount of dredging to insure good navigation next season, and the towing path needs considerable gravelling. The prism of the canal is in many cases inconveniently narrow and should be widened so that boats may pass each other without difficulty.

General repairs to lock gates, bridges, &c., are needed.

Total amount expended by superintendent	$3,068 23
Total amount paid repair contractor	7,012 50
Total	$10,080 73

Structures or works, &c.	Cost of new structures.	Cost of repairs of old, &c.	Total new and old.
Locks	$403 20	.....	$403 20
Farm bridges (wood) and approaches	669 43	.....	669 43
Road bridges (wood) and stone abutment	401 35	.....	401 35
Timber sheds	105 25	.....	105 25
Dams	841 11	.....	841 11
Other miscellaneous expenditures	.....	81 25	81 25
	$2,420 34	$81 25	$2,501 59
Superintendent's salary, 8 months			566 64
			$3,068 23

The following are the amounts expended on the Champlain canal for repairs during a series of years past:

Years.	Section 1.	Section 2.	Section 3.	Total.
1851	$23,870 27	$16,844 49	$10,252 07	$50,966 83
1852	37,611 43	19,246 62	18,660 96	75,519 01
1853	38,225 47	18,791 71	21,946 18	78,963 36
1854	31,025 06	24,894 34	16,663 01	73,463 48
1855	48,756 85	24,083 28	17,543 08	90,383 21
1856	21,191 60	11,647 30	12,535 30	45,374 20
1857	54,357 76	9,574 78	8,707 77	72,640 31
1858	42,386 75	24,561 20	14,111 21	81,059 16
1859	37,309 00	15,726 39	11,843 37	64,875 76
1860	26,997 46	16,621 80	12,401 70	56,020 96
1861	12,305 84	11,488 99	4,952 97	28,747 80
1862	16,752 47	10,666 85	8,668 22	36,087 54
1863	27,673 30	11,495 96	13,795 20	52,964 40
1864	27,021 63	22,310 09	10,884 79	60,216 51

BLACK RIVER CANAL.

The Black River canal extends from Rome to Lyons Falls, a distance of 36 miles; and there are connected with it and forming part of its navigable length the Delta feeder, navigable for 1¼ miles, Boonville feeder navigable for 10½ miles, river above Forrestport dam navigable for 2 miles, improvement of the Moose river above Lyons Falls dam 1½ miles, and the improvement of the Black river 42½ miles, making a total navigable length of 93¾ miles.

The canal and river improvements are divided into three superintendent's or repair sections.

The whole of this canal was, until the 27th January, 1864, in charge of Joseph French, as superintendent, at which time Oscar L. Wetmore was appointed.

Section No. 1.

This section extends from the junction of the Black River canal with the Erie canal, at Rome, to a point one thousand feet north of lock No. 70, and is about twenty-four miles in length.

The following are the structures upon this section:

70 lift locks; 1 guard lock; 10 culverts; 2 draw bridges across Delta feeder; 19 lock houses; 1 aqueduct over Rome and Ogdensburgh railroad; 18 farm bridges; 2 farm bridges owned and supported by individuals; 1 dam across the Lansing kill; 5 waste weirs; 15 road bridges; 2 road and change bridges; 5 aqueducts.

The contract for the repairs of this section was let to Edward H. Edwards, for the term of four years and eight months, commencing May 1st, 1861, at $8,700 per annum.

The Contracting Board, in obeyance to chapter 252, of the Laws of 1864, made an award to the contractor of fifty per cent on the contract price, as an equitable allowance for the greatly increased price of labor and materials necessary to the repair of the canal, making the annual compensation of the contractor after the first day of August, 1864, $13,050.00

New structures.—Eighteen lock gates have been put in and the balance beams have been renewed in many cases, and new docking has been built on towing path side at lock number 20.

During the past season the water found a passage under the foundation of lock number 60, extending through the chamber and washing the soil from under the lock walls, causing a

depression near the upper and lower gates. It has been concreted.

Repairs.—The sluice around combined locks numbers 44, 45 and 46, has been rebuilt on a new foundation at a cost of $326.52, a portion of the expense was paid by the State, the balance was charged to the repair contractor.

The two spans of the Wells brook aqueduct, which are removed every winter for the passage of ice, were replaced. The road and farm bridges have been somewhat repaired by replanking and the insertion of new timbers. The valves and mitre sills of locks between Boonville and Western have been considerably repaired. The coping and stone walls of the waste weirs, the sluices around the locks and other structures, have been considerably repaired, and the levels of the canal bottomed out last spring.

Requiring repairs.—Quite a number of lock gates and bridges will require rebuilding. Many of the lock bottoms, mitre sills and valves are in bad condition, as it is impossible to repair them while passing water through the canal, and must be done in the winter and spring.

Timber is being delivered for the construction of lock gates and bridges, which it is designed to have in readiness before spring. The docking at the head of the locks in many places must be repaired and the lock houses require some attention.

There has been but little detention to navigation during the season and that arose from the failing of some of the lock gates.

But two boats, and those old, have sunken, causing no delay to navigation.

SECTION No. 2.

This section commences at a point one thousand feet north of lock No. 70, and extends to the junction with the Black river at Lyon's Falls, a distance of twelve miles. It includes the Boonville feeder to Forrestport, a distance of ten and a half miles; also, the river above the dam at Forrestport, some two miles in length, and the Moose River improvement above the dam at Lyon's Falls, one and one-half miles long.

The contract for the repairs of this section was let to Benjamin F. Maxson for the term of five years, commencing March 1, 1861, at $4,178 per annum.

The Contracting Board, in pursuance of the law of 1864, made an award of fifty per cent upon the contract price, to commence from the first day of August, making the present annual compensation $6,267.00.

The following are the structures upon this section:

39 lift locks, 1 guard lock, 13 lock houses, 1 aqueduct, 6 waste weirs, 10 culverts, 2 dams, 16 road bridges, 22 farm bridges, 1 farm and chain bridge, 1 road and chain bridge, 1 towing path bridge.

New structures.---Three road bridges have been built by the repair contractor at Lyon's Falls, Lee's mills, and one on the feeder below Hawkinsville. New head gates and double valves have been put in the guard lock at the head of the feeder, furnishing a much larger supply of water. A stop gate has been built at the expense of the State on the feeder about a mile below Hawkinsville. New bents have been put under Grossman's farm bridge; the docking below the guard lock has been substantially repaired, and quite a number of lock gates have been put on the old gates.

Repairs.—The lock gates have received some repair; many of the bridges have been replanked and otherwise repaired. The bridge over the canal on Main street, in the village of Boonville, has been thoroughly overhauled, and has been raised about nine inches; the expense of raising was paid by the State.

Structures requiring repairs.—The docking at the head of many of the locks must be repaired; the work is now in progress. The lock houses also will need some repair. The banks along the line of the feeder, from Boonville to Forrestport, are mostly composed of sand, are much washed by the strong current caused by a descent of seven inches to the mile; the banks must be strengthened in many places. Heavy bars are often formed by the washing of the banks, so often that the maintenance of navigation is almost impossible. The banks should be lined with gravel, which holds its shape and does not wash; an expenditure of a considerable sum might wisely be made for such an improvement.

Several bridges will have to be rebuilt; the timber is already on hand.

Navigation was delayed six days in consequence of a boat breaking through the gates at lock number 109.

The Reservoirs.

The Erie canal must have suspended all navigation for quite a length of time during the past season but for the large supply of water furnished to it at Rome through the Black River canal by

the reservoirs on the head waters of the Black river. Since the earlier part of June last these reservoirs have furnished a steady supply of water, entirely filling the feeder until the latter part of September, when the effects of the drouth were no longer felt.

The expense of their maintenance has been only nominal since their completion. Woodhull Lake reservoir will require some slight repairs in the spring.

SECTION No. 3,

Includes the Black River improvement from Lyon's Falls to Carthage, a distance of 42½ miles, and the repairs are contracted for by Ward & McVickar, for $3,800 per annum; their contract expires November 1, 1864.

Fifty per centum was allowed by the Contracting Board as an equitable allowance for increased cost of maintenance of repairs pursuant to chapter 252 of the Laws of 1864, making the annual compensation after first day of August at the rate of $5,700 00.

The following are the structures upon this section:

1 road bridge at Carthage, 1 draw bridge at Beach's, 1 draw bridge at Illingsworth's, 1 draw bridge at Carter's, 1 draw bridge at Tiffany's, 1 dam and lock at Otter creek, dam at Carthage.

With the exception of some improvements to the draw at Carter's Landing, made by the State, all the repairs were made by the repair contractor.

The contract for the repairs of this section expired on the 1st day of October inst., but will be immediately relet until which time it will be in charge of the superintendent of repairs.

The following are the amounts expended on the Black River canal and Black River improvement, for repairs, for a series of years past.

YEARS.	Section 1.	Section 2.	River Imp.	Total.
1851	$7,127 35	$15,574 18	.....	$22,701 53
1852	8,370 56	22,240 37	.....	30,610 93
1853	6,895 85	19,324 03	.....	26,219 88
1854	12,321 43	16,256 82	.....	28,578 25
1855	9,347 28	24,514 40	.....	33,861 68
1856	4,826 55	12,377 18	.....	17,203 73
1857	3,935 08	9,860 97	.....	13,796 65
1858	3,999 00	14,622 75	.....	18,621 75
1859	8,107 70	16,818 03	.....	24,925 73
1860	4,821 54	14,724 85	$2,741 55	22,287 94
1861	9,962 37	9,639 59	3,799 92	23,401 88
1862	11,982 98	4,995 35	7,651 31	24,629 64
1863	10,956 35	5,455 16	4,043 34	20,454 85
1864	12,034 37	5,418 65	4,193 47	21,646 47

Statement showing the character of work, estimated cost, amount of work done during the fiscal year, whole amount done, and amount remaining to be done under contracts existing during the fiscal year ending September 30, 1864, *on the Eastern Division of the New York State canals.*

Character of work.	Estimated cost.	Am't done during fiscal year.	Whole am't done.	Am't remaining to be done.
REPAIRS OF THE ERIE CANAL.				
Iron superstructures at Ferry street, Albany, and over Port Schuyler side cut; also over upper side cut at West Troy, with work connected	$10,759 50	$7,220 00	$7,780 00	$2,979 50
EXTRAORDINARY REPAIRS OF THE ERIE CANAL.				
Removal of benches and slope wall and the construction of vertical and slope walls between locks No. 1 and 2	$29,000 00	$14,280 00	$15,260 00	$13,740 00
Removal of benches and slope wall and the construction of a vertical wall from the upper side cut at W. Troy, to lock No. 3	28,500 00	17,620 00	17,620 00	10,880 00
Improvement of the old feeder on the north side of the Mohawk river at Little Falls	6,242 69	6,242 69	6,242 69	Settled.
Stone dam across the Mohawk river Rexford Flats	30,000 00	2,900 00	2,900 00	27,100 00
A sewer in the village of West Troy to drain leakage from canal, extending from culvert west of weigh lock, east to Union street	4,481 20	4,481 20	4,481 20	Settled.
	$98,223 89	$45,523 89	$46,503 89	$51,720 00
CHAMPLAIN CANAL.				
Stopping leaks on Glens Falls feeder, Section No. 1	$36,034 51	$1,514 51	$36,034 51	Settled.
do do section No. 2	28,702 81	1,632 86	28,702 86	Settled.
	$64,737 37	$3,147 37	$64,737 37	.....
EXTRAORDINARY REPAIRS OF THE CHAMPLAIN CANAL.				
Rebuilding, on enlarged plan, lock No. 13, at Fort Edward	$30,000 00	$18,080 00	$18,080 00	$11,920 00
REPAIRS OF THE BLACK RIVER CANAL.				
Bridge over the Black river at Lyons' Falls	$11,060 20	.....	.....	$11,060 20

Statement showing charactar of work, estimated cost and amount paid on work not under contract on the eastern division of the New York State canals, from October 1*st*, 1863, *to October* 1*st*, 1864, *as performed under the supervision of the engineers.*

Character of the work.	Estimated cost.	Amount paid.
MISCELANEOUS REPAIRS ERIE CANAL.		
Bridge superstructure at Mohawk (difference)	$2,827 67	$2,017 04
Drain in the village of Canajoharie, Act, chap. 373, Laws of 1863	2,500 00	2,499 50
Bridge superstructures at Staring's and Benton and Richardson	685 03	685 03
Repairing foot of apron at Printup's aqueduct	280 35	280 35

Character of the work.	Estimated cost.	Amount paid.
Bridge superstructure at Water st., Albany, (difference)	$1,059 56	$445 68
do do Damon's, near lock 18, do	1,075 49	415 11
Cutting grooves in masonary at head of locks on superintendent's section, No. 2	360 00	360 00
Constructing temporary dam at Rexford Flats	200 00	200 00
Excavating gravel and putting in concrete over culvert near lock 24	990 00	990 00
Building slope wall near Kline's above Flint Hill	807 60	807 60
Repairing pier across lower end basin, West Troy	2,451 63	2,451 63
Constructing iron sewer at Broadway st., Utica	2,905 26	2,905 26
Vertical wall at Weigh Lock, Utica	1,095 00	1,095 00
do do John st. bridge, Utica	55 00	55 00
Sundry items of work on superintendent's section No. 2,	678 94	678 94
Extra work on break near Whitesboro'	833 88	833 88
Bridge superstructure at Crescent	720 20	720 20
do do Auburn st. W. Troy, (difference)	3,205 00	2,475 00
	$22,730 61	$19,915 22
EXTRAORDINARY REPAIRS OF THE ERIE CANAL. ACT, CHAP. 311, LAWS OF 1863.		
Change bridge at Rexford flats and bank across basin	$7,250 00	$207 78
Location of road at Bridenbecker's, near Frankfort, Act chap. 275, Laws of 1863	1,500 00	
Vertical wall at City Mills, Utica	539 50	539 50
Bottoming canal between Oriskany and Newville	2,300 00	
Removing wall benches between Ilion and Frankfort	2,300 00	1,476 71
Graveling tow-path between locks No. 40 and 41	1,700 00	1,196 97
Concreting foundations to locks No. 6, 7, 8, 10, 11 and 20,	6,400 00	6,400 00
Removing wall benches from Frankfort to Starch Factory*	1,040 75	1,040 75
Removing wall benches from Newville to Rome*	600 00	600 00
Altering bridge and tow-path at Port Schuyler	100 00	100 00
Raising abutments to bridge at Ferry street, Albany	225 00	
Siwng float bridge at Rexford Flats	590 00	590 00
Docking near freight depot Watertown R. R., Rome	5,520 00	5,520 00
Raising bridge over Big basin, Utica	515 00	515 00
Dam across Schoharie creek	29,880 00	29,787 46
	$60,460 25	$47,974 67
MISCELLANEOUS REPAIRS CHAMPLAIN CANAL.		
Raising abutment to road bridge Comstock's Landing	$100 00	$100 00
do bridges at Broad and Division sts. Waterford	300 00	300 00
do 7 road bridges between Waterford and Saratoga dam	216 50	$216 50
Raising 26 farm bridges beteen Waterford and Saratoga dam	552 00	552 00
Rebuilding Hutchin's road and farm bridge (difference)	547 00	547 00
Improving canal near Coville	301 50	301 50
Taking up and relaying masonry in lock at Ft. Edward	105 00	105 00
Relaying in cement farm abutment of first road bridge south of Fort Edward	81 00	81 00
	$2,203 00	$2,203 00
MISCELLANEOUS REPAIRS BLACK RIVER CANAL.		
New valves in upper gates of guard lock head of Black River feeder	$400 00	$395 61
EXTRAORDINARY REPAIRS BLACK RIVER CANAL.		
Constructing piers at Otter creek, Black river	$6,500 00	

*Paid from appropriation for the same from Oriskany to Newville.

GENERAL IMPROVEMENTS.

ERIE CANAL.

The advantages arising from the removal of the benches on the Eastern division of the Erie canal, so far as they have been removed fully warrant the expenditure by the State, of the necessary moneys for the removal of those which remain. There are now seventy miles or thereabouts yet undisturbed, and there is no improvement upon the Erie canal, from which greater benefits would immediately arise, more especially is this true with regard to the benches between the "sixteen locks," where the distance from lock to lock is short and the levels are almost always full of boats. An appropriation of $172,700 would be necessary for this purpose, according to the estimate of D. C. Jenne, engineer; and there is not, that I am aware, any place where an equal expenditure of money would produce greater good results or those more generally felt.

The necessity of concreting the bottoms of the locks built prior to 1842, has been more than once alluded to in prior reports. The locks which were built before that date, were not concreted as is now the universal practice, and after the floors of the locks become worn and the water pressing through under the piers little by little undermine them, and form troublesome breaches, frequently delaying and hindering navigation throughout the whole season. All the old locks should be carefully examined and should be concreted where there is any chance of failure. It would cost perhaps $2,000 per lock. There are now 18 locks needing the improvement, making an appropriation of $36,000 necessary.

At many of the locks there are no lock-houses, and where the locks are distant from a city or village it is often very difficult to procure and keep good lock-tenders, and it is upon them that rapid and easy navigation of our canals depend in a great measure. Cheap but substantial lock-houses should be built at or near every lock, so that the distance to and from the lock and house may be short, and the location convenient.

The weigh locks upon this division of the canals, with the exception of that at Waterford, are a constant source of annoyance and complaint. The scales in use are insufficient in capacity to weigh the amounts required of them with any degree of accuracy. Three hundred tons is not an uncommon weight for a boat and cargo. The scales at West Troy and Albany, have been in con-

stant want of repair, and in four instances have been crushed to the bottom of the lock by the weight of boats weighing upon them, to the very serious injury of the boats and cargoes. The scale at the Waterford weigh lock, and the lock itself, are of ample capacity, and have afforded not even the slightest cause of complaint, nor detention to navigation. In cost it is much less expensive than the scales heretofore put in, of most simple construction, and unlikely to get out of repair, and I am aware of none as permanent, accurate, or cheap.

I would therefore recommend that the weigh locks at Albany, West Troy and Utica, be remoddled and some new and stronger scales put in.

The insufficient supply of water between lock No. 39 and a point nine miles west of Higginsville, has long been a source of great annoyance and delay to those navigating the canal, and the means of obtaining the necessary supply has been the topic of many discussions. On the last revival of the discussion, with a view of meeting the difficulty, it was contended that the De Ruyter reservoir, when finished, would supply all that was necessary. This it has failed to do, and during the last season navigation has been suspended for at least twenty days in consequence, and boats have been detained a longer period because of the difficulty of passing the crowds which are universally the result of any stoppages. Had the business upon the canals been as flourishing as in some of the past seasons, the crowds would have been larger and the detentions longer.

There is only one practicable method, in my opinion, remaining, and that is the construction of the Fish-creek feeder. The construction of this feeder was warmly advocated in the report of the Canal Commissioners of 1860, and the matter was strongly urged upon the Canal Board, but that body saw fit to cause the construction of the De Ruyter reservoir in place of the Fish-creek feeder, and experience has shown the De Ruyter unequal to the demand upon it.

The recommendation of Fish-creek feeder to the Legislature was accompanied by a very able and carefully prepared report upon the subject, and estimates of the quantities, by Mr. S. H. Sweet, then resident engineer. The report and estimates of Mr. Sweet, upon the subject, show conclusively that this source of supply is constant, and may be depended upon, and will furnish even more water than is required for the supply of the easterly end of the level. The report and estimates of Mr. Sweet are here

given at length, and I would ask of all connected with the canals, or those having an interest in their successful maintenance, a careful perusal.

UTICA, *Dec. 29th*, 1860.

Hon. WM. I. SKINNER, *Canal Commissioner:*

Dear Sir—In answer to your several inquiries, made 21st inst., I beg leave to submit the following

REPORT.

NOTE A.

The quantity of water brought to the basin drained by the Oswego river, from Lake Erie and Chemung river	=11,887	c. ft. per m.

NOTE B.

The quantity carried in the same direction from reservoirs during dry season	=*5,816	" "

NOTE D.

The quantity required and used by the Oneida Lake canal	= 1,101	" "

NOTE G.

The supply from De Ruyter reservoir for 100 days	= 3,891	" "

NOTE C.

The present supply between lock No. 47 and Higginsville	= 7,581	" "

NOTE H & E.

The quantity required for a trade of 300 lockages between said points	=13,179	" "

NOTE F & H.

The deficiency for above trade between said points	= 5,598	" "

NOTE F.

The deficiency after adding De Ruyter to present supply for said trade and distance	= 1,707	" "
The distance that water will be sent east of lock 47 with present supply	= $5\frac{1}{3}$	miles.
The distance that water will be sent east lock 47, with De Ruyter added to present supply	= $24\frac{1}{2}$	"
The distance from lock No. 47 to Higginsville	= $33\frac{1}{2}$	"
The distance west of Higginsville to be supplied from Rome, after construction of De Ruyter	= 9	"

*See Note K for this quantity, as increased by State—3,072 cubic feet per minute.

NOTE J & H.

The total deficiency between locks 47 and 39, including Oneida Lake canal..... = 9,369 c. ft. per m.

NOTE I.

The present supply between Higginsville and lock No. 39 at Little Falls..... =15,030 " "

NOTE J.

The quantity required for a trade of 300 lockages per day for same..... =18,801 " "
The deficiency for above trade and distance = 3,771 " "

NOTE K.

The distance supplied west lock 39, with present supply and above trade ..... = 30 miles.

NOTE I.

The distance from lock 39 to Higginsville.. = $48\frac{5}{6}$ "

NOTE K.

The distance east of Higginsville (exclusive of Oneida Lake canal) unsupplied ..... = $18\frac{5}{6}$ miles.
The intermediate distance unsupplied, (including do.,) being $28\frac{1}{6}$ miles west, and $18\frac{5}{6}$ east of Higginsville, (with present supply between Higginsville and lock 39)..... = 47 "

NOTE E.

The quantities discharged at different periods into Syracuse level.

Following are calculations in detail.

Respectfully submitted, S. H. SWEET.

NOTE A.

The quantity of water brought to the basin drained by the Oswego river from Lake Erie and Chemung river.

1*st. From Lake Erie.*—Under a Senate resolution, dated January 26, 1850, the Canal Commissioners caused an examination and report to be made by Henry Tracy, Esq., upon the subject of a supply of water for the Erie canal from Buffalo to Montezuma, to be drawn from Lake Erie.

From the report of Mr. Tracy, the Commissioners fixed the size of the prism of the canal, from Tonawanda creek east, of capacity sufficient to deliver from Lake Erie at the following points, the following quantities, cubic feet per minute, viz:

To pass	Black Rock,	35,020	cubic feet	per minute.
do	Tonawanda cr'k,	31,240	do	do
do	Pendleton,	31,000	do	do
do	Middleport,	27,200	do	do
do	Albion,	24,000	do	do
do	Brockport,	21,000	do	do
do	Rochester,	17,000	do	do
do	Clyde,	6,100	do	do

Measurements were made under the direction of John D. Fay, Division Engineer, to find the actual discharge from Lake Erie. The measurements being made during the dry season of 1858, resulted as follows, viz:

Mean velocity $\frac{58}{100}$ miles per hour, between Black Rock and Tonawanda, discharge 31,370 cubic feet per minute at Tonawanda. Hence the actual discharge being a trifle over the quantity contemplated, there must of necessity be delivered at Clyde at least 6,000 cubic feet per minute. The quantity passing November, 1860, as measured by Mr. Schermerhorn =3,700 cubic feet per minute, the amount used.

2*d*. *From Chemung river*.—The water from this river is taken into the Chemung feeder at Gibson, and discharged into the summit level of the Chemung canal at Horseheads, 16 miles in length. This stream seldom, if ever, fails to supply the demand. There have been times when the full capacity of the feeder has not been realized, caused by neglect in keeping the bulkhead and structures in repair, and clearing the prism of a heavy growth of weeds.

The theoretical discharge of this feeder is=12,050 cubic feet per minute, but the actual discharge at canal is=10,870, and supplies the canal south from junction to Elmira, six miles, and north to Seneca Lake, 17 miles. The quantity required and fed south is—supply being..... 10,870

Twenty-four lockages per day × 12,000 cubic feet each= cubic feet per minute.....	170
Add 25 per cent for flushing boats out of lock, =cubic feet per minute	42
Evaporation on 6 miles, one third inch from surface, =cubic feet per minute.....	25
Leakage through lock gates, = cubic feet per minute,	700
Filtration on 6 miles, 63½ cubic feet per mile, = cubic feet per minute.....	381
Waste at structures, 9 cubic feet per mile, =cubic feet per minute	54=1,372
Cubic feet per minute, started north =.....	9,498

The quantity lost on this in passing through the canal to Seneca lake:

Evaporation on 17 miles one-third inch from surface = cubic feet per minute	75	
Filtration on 17 miles = cubic feet per minute	1,080	
Waste on 17 miles = cubic feet per minute	156	
		1,311
Total cubic feet per minute discharged into Seneca lake from Chemung river		8,187
Total cubic feet per minute discharged into Seneca river from Lake Erie		3,700
Total c. ft. per min. discharged into Seneca lake and river,		11,887

NOTE B.

The quantity of water discharged into basins drained by the Oswego river from reservoirs, during the dry season, in excess of the natural flow of the same.

If measurements are not made before the construction of a reservoir, the only method to obtain the "natural flow" from lake reservoirs, would be the drainage from valley or basin, minus the excess of evaporation over fall of rain on pond for a definite period; and the total supply, the artificial capacity added to the "natural flow." The following supplies are calculated for 120 *days*, July to October, inclusive, 10 *inches fall of rain*, 0.28 as the ratio of *drainage* to the total fall of rain, and 33 inches *evaporation* for this period, all adopted from the following facts and experiments, viz:

The average fall of *rain* in this State, from 1826 to 1856, for July, August, September and October=14.85 inches.

The ratio of *drainage* to the total fall of rain and snow for the year was found to be for 1835, 1837, 1838, 0.44 per cent., from July to October, 0.28 per cent., determined from experiments by John B. Jarvis, Esq., on Madison and Eaton Brook reservoirs.

Evaporation.—(*Dry Season.*)

From experiments made in St. Lawrence county,=$\frac{33}{100}$ of an inch daily.

From experiments made by J. Trempter, Seneca lake,=$\frac{40}{100}$ of an inch daily.

From experiments made in Central Park, New York,=$\frac{50}{100}$ of an inch daily.

From experiments made in Erie and Chenango canals, $\frac{20}{100}$ to

$\frac{28}{100}$ of an inch daily. And from other sources, found to be for the year 49 inches, in this State.

Taking the average of the five experiments, we have for daily evaporation, during dry season, $\frac{33}{100}$ of an inch.

1*st. From Skaneateles Lake reservoir.*—Area of pond=8,320 acres; area drainage basin=90,000; available head=6 feet. The water is discharged into the Erie canal at Jordan, through the natural channel of the outlet, ten miles in length. Measurements were made by S. H. Sweet, of its flow during the dry season of 1859, and the entire season of navigation, and it was found to deliver at the canal for 120 days, at the rate of cubic feet per minute..... 7,520

Ded'nat.flow=$\left[\frac{(90{,}000\times43.560\times\frac{10\times0.28}{12})-(8320\times43.560\times\frac{33-10}{12})}{120\times24\times60}\right]$=1,288

Surplus of the canal, cubic ft. per min..... 6,232

And the loss on this in passing seventeen miles through the canal to Montezuma, (where it is discharged into Seneca river), is in proportion to the loss by filtration, waste, and evaporation, on the whole amount passed in the canal, which was, in 1859,=173 cubic feet per min. per mile, on 7,575=0.02281 loss on each cubic foot passed per mile, which on above would be=6,232×0.02281×17=..... 2,414

C. ft. per min., total discharged into Seneca river from Skaneateles lake..... 3,818

2*d. From Cazenovia Lake reservoir:*

Area of pond = 1778 acres; area drainage basin = 25,000; head 4½ ft.

Capacity=$\frac{1778\times43.560\times4\frac{1}{2}}{120\times24\times60}$=c. ft. per min..... 2,017

+nat. flow=$\left[\frac{(25{,}000\times43.560\times\frac{10\times0.28}{12})-(1778\times43.560\times\frac{33-10}{12})}{120\times24\times60}\right]$=614

Total supply cubic ft. per min..... 2,631
Deduct natural flow..... 614

Leaving a surplus at canal, cubic ft. per min..... 2,017

and the loss on this in passing twenty-one miles, from Chittenango to Mud lock on the Oswego canal, (where it is discharged into Seneca river,) being the same per c. foot, as Jordan level=0.02281×2,017×21=c. ft, per min..... 966

Total surplus from Cazenovia lake, c. ft. per min.= 1,051

3d. From Erieville reservoir:

Area of pond=340 acres; drainage basin=8,000; head=21½ ft.

Capacity=$\frac{340\times43.560\times21\frac{1}{2}}{120\times24\times60}$=c. ft. per min..... 1,820

+nat. flow=$\left[\frac{(8000\times43.560\times\frac{10\times0.28}{12})-(340\times43.560\times\frac{33-10}{12})}{120\times24\times60}\right]$= 310

Total supply, c. ft. per min.....	= 2,130
Deduct natural flow, c. ft. per min.....	= 310
Leaving surplus at canal, cubic feet per min.....	= 1,820
on which there is a loss in passing twenty-one miles thro' the canal from Chittenango to Mud lock (where it enters Seneca river,) cubic ft. per min=0.02281×21×1820 ..	= 873
Total surplus from Erieville reservoir.....	= 947
do do Cazenovia lake reservoir.....	= 1,051
do do Skaneateles lake do	= 3,818
Total surplus from reservoirs, cubic ft. per min...	= 5,816

Note C.

The present supply of water in the canal, between Higginsville and Lodi, for July, August, September, and October.

Under note B, will be found the supply of Cazenovia lake and Erievile reservoirs, c. ft. per min. of both for 120 days= 4,761

Oneida creek, c. ft. per min., as per measurement July, 1859.....	= 1,500
Limestone creek, c. ft. per min., as per measurement of July, 1859.....	= 500
Butternut creek, c. ft. per min., as per measurement of July, 1859.....	= 500
Other sources, c. ft. per min., Pool's brook, Cowassalon creek.....	= 320
Total supply 1859, c. ft. per min.....	= 7,581
By repairing structures on feeders an increased supply may be obtained for 1861, as follows: Oneida creek, 300; Limestone, 250; Butternut, 125; Pool's brook, 50; Cowassalon creek, 150.....	= 875
Total.....	= 8,456

Note D.

The quantity of water required to supply the Oneida Lake canal, or the amount used.

This canal is supplied from the Erie canal at Higginsville, which is 33½ miles from lock No. 47, and 24 miles from lock No.

46. It has seven locks, and an aggregate fall of 58 feet to Oneida lake. The canal proper is 3¾ miles; creek navigation, 2¼. It became the property of the State under an act dated 11th May, 1840, which authorized the Canal Commissioners "to purchase the interest in the Oneida lake canal and feeder, and the navigation of Fish creek." Stock to the amount of $50,000 was issued for the same, April 12, 1841.

A large quantity of water has been wasted on this canal the past ten years, caused by the leakage of the old locks out of repair, and the quantity used will cover the amount required for contemplated new locks. It is believed that 20 lockages per day will be an ample estimate for the past and future trade of this canal—

Requiring for lockage water	166	c. ft. per	min.
Leakage through gates	650	"	"
Add 25 per cent. for flushing boats out of lock	41	"	"
Evaporation on 3¾ miles, ⅛ inch from surface	11	"	"
Filtration on 3¾ miles, 62½ cubic ft. per mile	233	"	"
Total c. ft. required and used on Oneida canal	1,101		

Of which 820 cubic ft. per min. is discharged into Oneida lake.

NOTE E.

The quantity of water delivered at Syracuse from the west end of the "Long Level;" lockage, leakage and waste at No. 47, Lodi.

1*st Leakage.*—Experiments were made in 1848, on locks 60 and 61, built in 1840, and leaked as follows:

No. 60, single, 10 feet lift	1,344	cub. feet per min.
" 61, " 8 " "	1,220	" "
Others, " varying from 450 to	1,100	" "
Lock No. 47, 10½ feet lift, the gates are old and out of repair. It is deemed proper to allow for this lock, leakage	2,750	" "

2*d Lockage water, with total discharge.*—Cubic contents, 21,750 feet; 2 locksfull to pass 3 boats; leakage per minute, 2,750; waste, ¼ of lockage water. Using the foregoing as a basis, the *total quantity* of water, *discharged* through the lock *upon the Syracuse level*, was, at different periods:

July to Oct., incl.,	1859,	daily avg.	101	lock'gs,	=4,021	c. ft. per m.
Avg. for season,	1859,	" "	93	"	=3,921	" "
Largest month,	1859,	" "	118	"	=4,172	" "
" day,	1859,	" "	177	"	=4,917	" "
October 6th,	1860,	" "	213	"	=5,430	" "

It is believed safe for the future trade of the canal, to provide water sufficient for 300 lockages, requiring 200 locksfull of water per day. This will make the quantity passed upon the Syracuse level, from west end of long level:

lockage water= $\frac{200 \times 21.750}{24 \times 60}$ ..... =3,020 c. ft. per m.

Add $\frac{1}{4}$ for waste through culvert and flushing = 755 " "
Leakage through lock gates, $10\frac{1}{2}$ feet lift.... =2,750 " "

Total cubic feet required per minute... =6,525

Greatest quantity used in any one day, 1859 =4,917 " "
" " " " July to Nov., 1859 =4,021 " "
" " " Oct. 6th, 1860..... =5,430 " "

Note F.

Deficiency between Higginsville and Lodi with present supply and trade, and the distance actually supplied east from lock No. 47.

Data:—

Under note C will be found the supply for 1859, c. ft. per m.		7,581
Under note C will be found supply for 1861, c. ft. per m.		8,456
E.	quantity passed for periods of lockages, at No. 47.	
H.	loss c. feet per min. per mile	198.17
E.	quantity required at lock No. 47 for 300 lockages.....	6,525

The following tabular statement includes that portion between lock No. 47 and Higginsville, and not the supply of Oneida Lake canal:

Daily lockages at different periods.	Quantities discharged into Syracuse level.	Present supply between Higginsville and Lock No. 47.	Loss per mile per minute.	Formula.	Actual distance supplied east of Lock No. 47.	Distance from latter point to Higginsville.	Deficiency between Lock No. 47 and Higginsville.
	c. ft. per min.	c. ft. per min.	c. ft. per min.				c. ft. per min.
93, av. for season 1859.....	3,921	7,581	198.17	$\frac{7,581-3,921}{198.17}$	18 2-3	14 5-6	2,940
101, July to Nov., 1859.....	4,021	7,581	198.17	$\frac{7,581-4,021}{198.17}$	18	15 1-2	3,072
118, largest month, 1859....	4,172	7,581	198.17	$\frac{7,581-4,172}{198.17}$	17 1-8	16 3-8	3,245
177, largest day, 1859.....	4,917	7,581	198.17	$\frac{7,581-4,917}{198.17}$	13 1-3	20 1-6	3,996
213, Oct. 6, 1860..... ...	5,430	7,581	198.17	$\frac{7,581-5,430}{198.17}$	10 3-4	22 3-4	4,508
300, for future capacity.....	6,525	7,581	198.17	$\frac{7,581-6,525}{198.17}$	5 1-3	28 1-6	5,598
With De Ruyter to present supply.....	6,525	11,472	198.17	$\frac{11.472-6,525}{198.17}$	24 1-2	9	1,707
As per Van Vleck's quantities, reported Dec. 5, 1859, with supply from De Ruyter reservoir added to his present supply	6,670	13,150	200.	$\frac{13.150-6,670}{200}$	32 4-10	1 1-10	220

Note G.

The supply that can be received from the proposed De Ruyter reservoir for 100 *days.*

1*st. Description.*—Is located in the extreme southwest corner of Madison county, town of De Ruyter, on the head waters of Limestone creek, and distant from the canal about 25 miles. There are a great many extensive mills upon the proposed outlet of this reservoir, which, with the present supply from the creek, are only able to operate about three-fourths the year—a very objectionable feature to its being made the outlet of a reservoir of such small capacity, as experience has demonstrated almost fatally on the Jordan level during the dryest period—withholding the water during the night by mill owners, for a strong head during the day.

2*d. Data.*—Area of pond=626 acres; drainage basin, 12,000 acres; available head, 18½ feet; fall of rain, eight inches; ratio of drainage to fall of rain = 0.28; evaporation = 24 inches for 100 days.

Capacity $= \frac{? \times 43.560 \times 18\frac{1}{2}}{100 \times 24 \times 60}$ .....=3,472 c. ft. per m.

Add natural flow :=

$\left[\frac{(12{,}000 \times 43.560 \times \frac{8 \times 0.28}{12} - (626 \times 43.560 \times \frac{24-8}{12})}{100 \times 24 \times 60}\right]$ = 420 c. ft. pr. m.

Total supply for 100 days.....= 3,891 " "

Note H.

The loss by evaporation, filtration and waste, on a mile of enlarged canal, per minute.

The quantities as given for the old size of canal were determined by experiments:

Evaporation, old canal, 3 c. ft.: enl'gd canal, $\frac{1}{3}$ in. from surface = 14.25
Filtration, old canal, $63\frac{1}{2}$ cubic feet: enlarged canal—
($\frac{1}{3}4\sqrt{4} + 28\sqrt{4}$): ($\frac{1}{3}7\sqrt{7} + 52\frac{1}{2}\sqrt{7}$) :: 1 : 2.45 the old ..... =155.57
Waste, old canal, 9 cubic feet, enlarged canal—
$(42+26)^{\frac{4}{2}}$: $(70+52\frac{1}{2})^{\frac{7}{2}}$ :: 1 : 3.15 the old..... = 28.35

Loss per mile, exclusive of lockages, cubic feet per min. =193.17

Lockage and total loss between lock 47 and Higginsville=
$33\frac{1}{2} \times 198.17 + 6.525$ ..... =13,179
Total supply (see Note C) ..... = 7,581

Total deficiency between lock 47 and Higginsville, cubic feet per minute... ..... = 5,598

Note I.

Present supply between Higginsville and lock No. 39 at Little Falls, 49 miles.

From Mohawk river at Rome.—As per measnrements made July, 1859, by Wm. B. Taylor, Esq.....	10,500	cub. ft. per min.
From Black River canal.—Lock ten feet lift, ten lockages per day = $\frac{10 \times 15{,}000}{24 \times 60}$	= 104	" "
Leakage through gates.....	= 450	" "
Average feeding through $\frac{1}{2}$ valve of one opening	= 740	" "
From Wood creek.—As per measurements made during dry season, 1854.	= 125	" "
From Butts' creek.—As per measurements made during dry season, 1854.	=1,400	" "

From Chenango canal.—Five feet lift first lock, eight lockages per day= $\frac{11\times8000}{24\times60}$	=	61 c. feet per min.
Leakage through gates	=	350 " "
Average feeding through ½ valve, one opening	=	500 " "
From Ilion creek.—As per measurements made August, 1856	=	800 " "
Total supply	=	15,030 " "

Henry Van Vleck's report, dated December 5th, 1860, made to the State, gave the above supply at cubic feet per min. 14,950.

NOTE J.

Deficiency between Higginsville and lock No. 39 at Little Falls, for a trade of 300 lockages per day, and Oneida Lake canal, for a trade of 20 lockages per day.

Quantity required for Oneida Lake canal, given under note D	=	1,101 cub. ft. per min.
Utica weigh lock, 70 lockages per day and leakage	=	1,375 " "
Lockage, water and leakage at No. 39, 10½ feet lift (see note E)	=	6,525 " "
Loss on 49 miles by evaporation, filtration and waste (see note H.)	=	9,800 " "
Total quantity used	=	18,801 " "
Total quantity supplied (see note I.)	=	15,030 " "
Total deficiency	=	3,771 " "

NOTE K.

With the present supply between locks 47 and 39 and a trade of 300 lockages (requiring 200 locksfull) per day, how far east of the former and west of the latter can the canal be supplied? the length of unsupplied portion and amount required to supply the same.

Data:—

Present supply between lock 47 and Higginsville (see note C.)	=	7,581 cub. ft. per min.
Quantity required to pass lock 47 (see note E)	=	6,525 c. feet per min.
Quantity required per mile (see note)	=	198.17 " "
Present supply between lock 39 and Higginsville (see note I.)	=	15,030 " "

Quantity required to pass lock 39 (see note J.) ..... = 6,525 c. feet per min.
Quantity required for Utica weigh lock (see note J.) ..... = 1,375 " "
Quantity required per mile (see note J.) = 200 " "
Then the dist'ce supl'd east lock 47 $= \left(\frac{7,581-6,525}{198.17}\right) =$ 5⅓ miles.
Dist'ce supl'd west lock 39 $= \left(\frac{15,030-6,525+1,375+1,101}{200}\right) =$ 30 mls
Distance unsupplied (from 18⅚ miles east to 28⅙ west of Higginsville ..... = 47 "
Quantity required for unsupplied portion, including Oneida Lake canal, 9,369 cubic feet per minute.

NOTE K.

The drainage basin of the Oswego river exceeds 7,500 square miles, equal to one-sixth the area of this State, and embracing the important lakes of Cayuga, Seneca, Canandaigua, Crooked, Onondaga, Cazenovia, Oneida, Skaneateles, and five smaller, Owasco, Cross, Otter and Fish lakes. Its extent, east and west, on the Erie canal, is from a few miles west of Rome to the west line of Wayne county, and extreme southern limits to within ten miles of Elmira.

Mr. Richmond reports the increased head to Cayuga lake and Skaneateles lake reservoirs by the State of two feet on each. This will make the surplus from reservoirs as follows:

	c. ft. per min.	
Skaneateles lake, proportion for two feet	2,507	
Deduct loss in passing 17 miles through canal, same percentage of loss as former	965	
		1,542
Cazenovia lake, proportion for two feet	1,120	
Deduct loss in passing 21 miles through canal	537	
		583
Erieville same		947
		3,072

I further quote some remarks from the Canal Commissioners' report of that year, they are no less applicable at this time than they were at that.

"The deficiency of water between lock 47 and Higginsville, or nine miles west of it, after the De Ruyter is brought in with an estimated supply of 3,891 cubic feet per minute, will be 1,707 cubic feet per minute. The distance to be supplied from Rome,

west of Higginsville, will be nine miles, and the whole distance unsupplied, east of Higginsville, exclusive of Oneida lake, will be 18⅝ miles, after the De Ruyter is brought in. If this deficiency has to be supplied from Rome, then it is evident, from the subsequent statements of Mr. Sweet, that the deficiencies to lock 39 will be so great, that even a five foot navigation cannot be maintained, in the dry season, between Rome and lock 39.

"But can the estimated supply from the De Ruyter, of 3,891 cubic feet per minute, be relied upon?

"If that amount is discharged from the reservoir, the residue, after deducting evaporation, lockage and other wastage, will probably reach the canal in regular supply, if the State appropriates and pays the damages for the whole bed of the stream, and all the mills and other erections thereon, from the reservoir to the canal. If this be not done, the water discharged from the reservoir must pass through a colonade of mill-dams from it to the canal. These dams will be closed at night, and when well filled to their full capacity, the State will probably be allowed to take the wastage until the mills are set running in the morning; consequently the supply will be irregular, and then, as heretofore, the water at the west end of the level will run down by the discharges at lock 47; the boats on the west end of the level will be aground in the morning, and must remain aground until the level is raised by the discharges from the mill ponds.

"If we have not yet had enough of this sort of partnership, between the State and private parties, in respect to waters needed for canal purposes, we shall probably get it after this reservoir is constructed, and an attempt to supply our needs for water from private mill dams. I refer to the remarks of Mr. Sweet on this subject, in note G of his statement.

"The undersigned now passes to that part of the level from nine miles west of Higginsville east, and to lock 39 at Little Falls. The total deficiency on this part of the canal, including the Oneida Lake canal, is 9,369 cubic feet per minute, and without that canal 8,268. The distance from lock 39 to Higginsville, 48⅝ miles. The present supply taken in at Rome, and east of that place, is 15,030 cubic feet per minute. The required supply on the estimated trade, 18,801, deficiency, 3,771, showing that if the losses by evaporation, filtration and waste, between Rome and nine miles west of Higginsville, are made good by a feeder between these

two points, all the deficiencies east of Rome will be supplied at that point, and by feeders east of it to lock 39.

"A deficiency in the supply of water on this level, even for present purposes, seems to be admitted on all hands, and it is anticipated this deficiency will largely increase when we fill the canal to its enlarged capacity of seven feet by seventy, and we have seen that the De Ruyter reservoir cannot supply our wants, even on the western end of the level, from nine miles west of Higginsville to lock 47; leaving the intermediate distance to Rome unsupplied, or to be supplied from that place. The undersigned refers to the reports of Division Engineers Van Vleck and Taylor, read to this Board in December last, and also to the report of the State Engineer in November last, in reference to a resolution of this Board, of September 6, 1860.

"Mr. Taylor estimates that a supply of 8,000 cubic feet per minute may be obtained from Fish creek, to be taken into the canal four miles west of Rome. This supply is obtained from a living running stream of water, and taken through a channel owned by the State, not liable to obstructions and diversions by mills and mill dams, nor subject to the claims of riparian owners.

"But it is urged that heavy claims for damages will be interposed by citizens of Oswego, for the diversion of this water from a tributary of the Oswego river.

"Let me inquire, one moment, into the extent of any claim of this sort; and the justice of it, if any should be established. All the leakage, soakage and drainage, from the canal west of Rome, is into lands bordering on Wood creek, a tributary of Oneida lake, and into lands bordering on that lake. None of it comes east of that point. All the discharges from the Erie canal through the Oneida Lake canal, are into the lake, being 1,101 cubic feet per minute. All the discharges at lock 47, are on to the Syracuse level, where they flow into tributaries of the Oswego river, and are equal, during the dry season, to 3,072 cubic feet per minute, supplied by the State from its numerous reservoirs. I may venture the remark, with much confidence, that not a drop of water from the Fish Creek feeder will find its way east of Rome. Some of it may, but I do not think so. The waters of the contemplated feeder will crowd the natural and artificial flows into the canal west of it towards lock 47, and increase the discharges from that point into the Syracuse level. The loss to Oswego will be the difference in evaporation, &c., by the feeder

water passing round into the Syracuse level by the contemplated route, and the more direct flow into the Oneida lake.

"But one moment to the equity of any such claim against the State, aside from any considerations resulting to the commerce and trade of Oswego, by a full supply of water on this level.

"The drainage basin of the Oswego river is more than 75,000 square miles, and is equal to one-sixth of the area of the State.

Into this basin the State, by artificial channels, discharges from lake Erie and Chemung river, a volume

of water equal to	11,887	cub. ft.	per min.
From reservoirs during the dry season	5,816	"	"
From reservoirs an increase by the increase of heads to certain reservoies, as per report of State Engineer	3,072	"	"
Total	20,775	"	"

"By the application of these waters to the purposes sought, the commercial enterprise of Oswego will be fostered and promoted equal to that of any other place in the State, located upon our enlarged water communications. Has the State dealt harshly with that enterprise? Has she not given more than she proposes to take? And yet we should not take that even, if it can be avoided, nor if we are to respond in damages to an amount exceeding the public advantages to follow the appropriation. As the supply from the De Ruyter reservoir cannot be made available the next season, when the same may be needed, and as the supply from that source is confessedly inadequate to our wants, even when secured, the undersigned, in view of the great interests at stake, can cheerfully put himself on record in favor of the proposed Fish creek feeder. If any doubts shall be suggested in regard to the supply from this source, he will remark that the waters of Salmon river, as he is informed, can be brought into aid at small expense."

Should Oswego consider herself wronged or aggrieved by the loss of water taken by the Fish creek feeder, which can only be small, as the largest portion of the water finds its way back at Higginsville, through the Oneida Lake canal, and at Syracuse through the Oswego canal, the State might easily make up for any such loss by the construction of a dam on the outlet of Oneida lake, which would form a reservoir from which Oswego might draw to her heart's content.

A dam such as would be necessary could be built at small expense, and would furnish more water for the Oswego canal and the mills upon the river than Fish creek has ever furnished at dry seasons.

The construction of this feeder is of vital importance to the canals, as navigation cannot be maintained throughout the dry months of the summer without it or some other large supply of water. And if during the past season of limited business upon the canals the detentions have been over twenty days, what are we to expect in future when the business shall increase as in past seasons.

When the State of New York has already expended such large sums in the construction of her public works, shall she hesitate about completing their usefulness because of the local interest of one portion of the State, especially when that section owes its prosperity to the construction and maintenance of the same public work. Should she not make the necessary appropriation of water and the necessary expenditure of moneys for this purpose, rather than have the whole operation of the State works suspended for so great lengths of time, when she has the remedy so perfectly within her reach?

The cost of the construction of this feeder at the present time would be about $350,000, which, though a large sum, will soon be returned many fold to the Treasury of the State through the tolls received during the time of detention, only from the increased business of our canals; and the business will certainly be increased when the public become confident that the produce sent to market will proceed on its way without detention or interruption.

The deficiency of water might be considerably alleviated by the construction of a weigh lock at Frankfort, as recommended in the report of last year, as follows:

"The Canal Commissioners, some time since, offered in the Canal Board a resolution for the construction of a weigh lock at or near lock No. 45, (Frankfort,) the most easterly end of the Long Level. The supply of water for this level and those east of it to Little Falls, has, since the enlargement of the Erie canal, been insufficient in dry weather, and at times it has been almost impossible to keep up navigation. All boats passing westward from points west of Albany, and all boats from the lateral canals and ports east of Syracuse, weigh at Utica, and a large quantity of water is necessarily drawn from the Long Level for that purpose, where it cannot be returned to the canal. It is desirable, for economy of water, to construct a new weigh lock at a point where the discharge in weighing would not be lost to the canal but could be returned on a lower level.

Frankfort being nearly half way between Albany and West Troy and Syracuse weigh locks, is thought to be the most fit place for the construction of such a lock, where all boats, except those navigating Black River and Chenango canals, and those unloading at Utica, would be weighed.

"In the estimate of quantities of water used and necessary to be used from the canals, and from the deductions of S. H. Sweet, in the report upon Fish creek feeder, published in the Canal Commissioners' report for 1860, it appears that the quantity of water received into the canal at Rome is 11,687 cubic feet per minute; of this quantity 8,500 cubic feet are sent east to supply the canal to Little Falls, a distance of 38 miles, and of the amount sent east 1,375 cubic feet are consumed by the Utica weigh lock. The greatest deficiency of water is upon this portion of the canals, and there is, with the exception of Fish creek feeder, no other source from which a supply could be drawn, and the expense of constructing that feeder would, by that estimate, be from $250,000 to $300,000.

"Regarding the question in the light of economy only, the saving of such an amount of water for the easterly portion of the canal would warrant a considerable expenditure. The Utica weigh lock, as before stated, consumes in an average day (70 lockages) 1,375 cubic feet per minute. Of the number of boats weighed in the course of the day, it is estimated that there are but ten for the Black River canal and eight for the Chenango canal, being together less than fifteen per cent. of the whole number."

In the original construction of the Utica weigh-lock the mitre sills were placed nearly or quite a foot above the bottom of the canal. They have been lowered since that time about four inches, but not sufficiently to allow the passage of large loaded boats over them when the water in the level falls below standard depth four or five inches. The lock and scale, too, are of insufficient capacity to weigh the largest class boats when they have entered the lock, and it must soon be taken up and rebuilt if the Erie canal boats are to be weighed upon it. Its capacity is sufficient to weigh any boats navigating the lateral canals, and might, if desirable, be used for that purpose should the new lock be built at Frankfort.

During the dry seasons of the future the use of this lock must be entirely suspended, or an adequate supply must be obtained from other than the present sources, else we must submit to a serious and injurious interruption of navigation. The lockages and wastage at this lock are equal to 6,274 lockages of an ordinary enlargement lift-lock, which are nearly equal to one-fifth of the entire lockages at lock No. 45 during the season of 1863.

We must meet the contingency of an adequate supply of water on this end of the Rome level, and the question is how can it be done? The removal of the weigh-lock will not give all the water that will hereafter be needed, but it will give an addition of

twenty per cent upon the quantity discharged at lock No. 45; it will afford important relief.

The expense of constructing a weigh-lock at Frankfort, according to the estimate of Mr. Jenne, the engineer, would be about $42,000, and I would earnestly recommend an appropriation for that purpose.

Improvement of the Champlain Canal.

The Champlain canal and Glens Falls feeder are, by a law of last winter, required to be improved throughout their length, so as to be thirty-five feet wide upon the bottom and five feet in depth of water, and the work of stopping leaks in the Glens Falls feeder completed.

Careful surveys and examinations of the entire canal have been made for the purpose of accurately ascertaining what was required to conform the canal to the provisions of the act. In many places for free navigation the canal must be straightened by cutting away a portion of one or both banks, and the spans of many bridges are so short that a new superstructure and one or more abutments will be required; and where the canal runs around the side of a hill its enlargement would require the cutting away of the steep hill-side or the construction of a high embankment. This might be remedied by the construction of a vertical wall without disturbing either bank.

A large portion of the work may be done through the season of navigation by dredging, and all that remaining may be done in the winter and spring, as soon as funds shall be provided for the purpose.

For a considerable distance between Waterford and Fort Edward no stone can be had for the construction of embankment walls, and timber docking will necessarily be used on the remaining portion of the canal. Stone may be had at comparatively small cost.

Wood creek, which, for quite a distance, forms the channel of the canal, may be improved by dredging, but at the same time the towing-path should be raised above high water mark, as it is often considerably damaged. Portions of the docking are torn out every season and navigation is suspended during high water.

Where increased depth of water in the canal is required, the plan which appears to be most feasible is that of raising the banks with the materials taken from the prism to make the re-

quired width of bottom. The bottom cannot be taken out without lowering the mitre sills and destroying the locks.

In the Glens Falls feeder the banks at the lower end will have to be raised, and the upper end will have to be deepened, as the descent is too great for the proposed width of channel; and the work of stopping leaks should be continued at as early a day as possible.

At the Waterford weigh-lock the entrances are difficult, and should be improved by cutting away the adjacent prominent points of the canal banks. A sluice should be constructed around the north guard lock at Cohoes to supply the level at Waterford with water.

At Stillwater a portion of the berm bank must be removed to remedy a very short bend in the canal.

Considerable labor will have to be performed at the Schuylerville aqueduct to give it proper enlargement.

The Champlain canal, for twenty-three miles, is supplied with water by the sluice around Saratoga lock, which will have to be enlarged, as the supply is now too limited.

The second dam on Wood creek is in bad condition and must be rebuilt. It is proposed to make it durable and permanent by the construction of a tree dam, similar to the one constructed at Schoharie creek, for the Erie canal.

The sum of $8,268.27 was expended by the superintendent of repairs last spring in improving the canal between Waterford and Saratoga dam.

All of the works specially named will be put under contract immediately, and the work urged to an early completion.

The Fort Miller and Moseskill locks are in very bad condition, and their immediate reconstruction is imperative. Besides these two locks above named, there are five others, viz: locks numbers 5, 6, 8, 9 and 10 which are not yet enlarged and although their early reconstruction is necessary, yet, at the present time they must remain as they are until the two first mentioned are reconstructed. It has been much feared for the last two or three years that the two former would fail in the midst of the season and thus wholly suspend navigation, and they have only been kept in working order by the most constant and careful attention.

As there is no appropriation for that purpose, I would recom-

mend that the Legislature immediately make an appropriation therefor and authorize their construction.

Improvement of the Black River Canal.

By act, chapter 151, Laws of 1864, the Canal Commissioners are authorized and required as soon as funds are provided therefor, to improve the navigation of the Black River, by the construction of a lock and dam at such point between Otter creek and Carthage, as in the opinion of the Canal Board, will most effectually improve the navigation of the river.

The sum of $24,298.51 was appropriated for that purpose. A survey has been made for the location of the lock and dam, at two points, and the estimated cost is from $57,000 to $58,000, besides land damages.

The work recommended by the Canal Board last summer, viz: the construction of a pier at Otter creek will be completed before the opening of navigation, and will materially assist in keeping that part of the channel in navigable order.

I would most respectfully yet earnestly urge upon the Legislature, the necessity for the foregoing appropriations of moneys, to be expended upon the eastern division of the canals:

For removing benches "16 locks"	$172,700
constructing lock-bottoms	36,000
the construction of Fish creek feeder for the supply of the Erie canal	350,000
the construction of a weigh-lock at Frankfort	42,000
the reconstruction of Fort Miller and Moseskill locks, on the Champlain canal	70,000
the construction of the dam and lock between Otter creek and Carthage, on the Black river, an additional appropriation of	35,000

When these and some few other works of a similar nature shall be completed, the eastern division of the Erie canal will be sustained and kept in repair at a much less expenditure of money, and the stoppages and delays now so much complained of will be few, and navigation made easier and more certain at all seasons.

Most respectfully submitted,

W. I. SKINNER,

Canal Commissioner.

Dated Albany, 1 *December*, 1864.

MIDDLE DIVISION.

The canal laws of the State, require the Canal Commissioners to make an annual report to the Legislature, in which they shall "state the condition of the canals, all the works and improvements connected therewith, the improvements and repairs made during the past year, or contemplated to be made, and the amount of money during the same period, received and expended by them and each of them, in the discharge of their duties; and shall recommend such measures in relation to the canals as they shall deem the public interests to require."

In obedience to the foregoing requisition the Commissioner in charge of the Middle Division, has the honor, respectfully, to submit the following

REPORT.

The replies to the preceding demands will be found arranged under their appropriate heads.

Moneys Received and Expended.

Drafts on the "Miscellaneous Fund" is the only means of deriving moneys from the Auditor of the Canal Department, which come directly into the hands of a Canal Commissioner.

The total amount so received from January 1, to the close of the fiscal year, is	$15,450 00
Total amount expended	14,934 20
Leaving balance in hand of	$515 80
The total amount expended by Superintendents during fiscal year, is.	$37,717 37
Total amount of miscellaneous expenditures for the same period (including $14,783.10 by my predecessor)	$29,035 41
Total amount engineering expenditures	$4,860 06
Total drafts and certificates for land damages (January 1, to Sept. 30)	$70,470 14
Total amount on account of construction of enlargement	$24,659 84
Total amount of drafts on the Auditor for repairs, extra allowances, construction work, work on change of plan, extraordinary repairs, and awards for relief	$426,578 40

Making a total of all expenditures (except for land damages during the first quarter by my predecessor, reported by him in an aggregate amount for fifteen months) $593,321.22.

A detailed statement of the expenditures enumerated above is exhibited in connection with brief descriptions of the several repair sections and canals, in the appendix to this report.

Statement No. 1.—Exhibits the canals and their length, their reservoirs and feeders and their capacity, comprising the middle division.

Table No. 1.—Exhibits the names of canals, superintendents and repair contractors thereon, date and expiration of repair contracts, contract prices previous to July 1, and contract prices thereafter, as increased by the Contracting Board July 15, under chap. 252, Laws of 1864, the percentage of award, and the amounts of extra allowance.

Statement No. 2.—Exhibits a description of canals and sections, and a detailed statement of expenditures on each.

Table No. 2.—Exhibits a recapitulation of expenditures upon each canal and section of canal by the late and present Commissioner, followed by a recapitulation showing the expenditures by each Commissioner upon each canal.

Statement No. 3.—Exhibits the several amounts paid on awards made by Canal Appraisers for land damages on account of the enlargement of the canals from January 1 to September 30, also the amounts upon each canal and the total amount upon all.

Statement No. 4.—Exhibits the payments made to contractors on account of the enlargment of the canals, under chap. 734, Laws of 1857 (which in certain cases allows interest to contractors) and payment of final account for constructing section No. 204, at Montezuma.

Appropriations.

The amounts appropriated for the current fiscal year, to the Middle Division, are as follows:

For extraordinary repairs under chapter 298	$66,103 22
For ordinary repairs under chapter 400	192,351 00
Total	$258,454 22
The amount requisite to be paid to repair contractors under *original* contract prices would be	$95,074 00
Increased compensation under chap. 252, Laws of 1864, and see page 68	99,467 45
Total amount now necessary for compensation to repair contractors...	$194,541 45

Work ordered by Laws of 1864.

Berme bank, Oswego Canal, chapter 475. Estimated cost	$90,470 00
Phœnix dam, Oswego Canal, chapter 475. Estimated cost	56,105 00
Bridge at Three River Point, chapter 476. Estimated cost	8,500 00
Oswego Weigh lock, Laws 1863, chapter 484. Estimated cost of completion	23,711 00
	$178,786 00
Improvement at Corning. Estimated cost of completion	20,000 00
Rebuilding Kingsley Brook Reservoir. Estimated cost	52,800 00
Rebuilding lock 100, Chenango canal. Estimated cost	8,152 50
Rebuilding locks 8 and 26, Chemung canal. Estimated cost	12,000 00
Miscellaneous	15,000 00
	$286,738 50
Add amount required for compensation to repair contractors	194,541 45
	$481,279 95
Deduct total amount of appropriations	258,454 22
Deficiency to be provided for	$222,825 73

It will be seen that the "deficiency to be provided for" is increased $99,467.45 by the extra allowances made to repair contractors, under chapter 252, Laws of 1864, for which the Legislature made no provision whatever, except to pay it from "the ordinary repair fund," and the amount appropriated from that fund is $2,190.45 *less* than the demand upon it.

The appropriations were based upon the estimates made by canal officers and *after* being made the Legislature seems to have acted upon the supposition that such appropriations were of so flexible material that the amount requisite to construct the Phœnix dam and Berme bank, amounting to $147,085 could, as well as not, be paid from the amount already appropriated, every dollar of which was needed for purposes other than those last named. It matters not what amount of work the Legislature "authorizes and requires the Commissioners" to construct, provided it appropriates the funds to pay; but when an appropriation is once made and fixed, and designed to cover certain work and no more, it is a source of some embarrassment to have large additional requisitions made, with no means of payment provided.

REPAIRS.

ERIE CANAL.

Previous to the opening of navigation the past season, grade or bottom stakes were directed to be set the entire length of this canal, to determine its true bottom line. In all cases where the bottom was found to have been filled in above its original or true bottom, necessary excavations were made, and the entire prism restored to its full capacity.

An important improvement was made at the head of lock No. 47, by the construction of a vertical wall on the berme bank; also, by substituting a vertical wall on the towing-path side of the short level between locks Nos. 47 and 48, in the place of the old bench wall. These two improvements complete all the change at present deemed necessary, to facilitate the passage of boats in the vicinity of the Lodi locks.

The experiment made a year ago in cutting down the crown of the arch of the New York Central railroad tunnel, has proved a complete relief to the difficulty heretofore experienced, on grounding on this point while filling the lock.

Camillus or Nine Mile creek feeder, has been improved the past season, in compliance with act, chap. 72, Laws of 1863, and made navigable for boats of the largest class. Some work yet remains to be done to fully complete the improvement.

Much anxiety has been felt during the whole season, for the safety of that portion of the canal passing the Montezuma marshes, between the Seneca river aqueduct and May's Point. Soon after the water was let in, unmistakable signs of failure in a portion of the berme bank was discovered, by a settling in some places, and by vertical cracks and openings in the centre of the bank at others. Immediate steps were taken for their security, by placing brush and stone at the foot of the banks; and other precautionary measures adopted, which have resulted thus far in maintaining the banks intact.

From close examination, the undersigned is confirmed in the belief that these banks are too slight for security, and that more or less expenditures will be required from year to year, as evidences of weakness or failure are developed, to render them even partially secure, and that only with the greatest care and watchfulness.

A large number of bridges have been reconstructed and others thoroughly repaired; several more will be repaired or reconstructed the coming winter.

The mouth of the Oneida Lake canal was closed by a permanent earth embankment, on the opening of navigation, for the double purpose of security to navigation and the retention of the water, which would otherwise have been wasted through its banks.

The Cowassalon creek culvert still continues to be a source of trouble and embarrassment. The culvert through which it passes

the canal is what is termed a diving culvert or siphon, and is composed of a series of wooden boxes (10 in number) of 4 feet opening. The well at the head of these openings is filled with flood-wood and drift at every freshet, and the adjoining country flooded. The pressure against the canal bank during the freshet of last spring previous to the opening, forced the water over the banks and carried 4,000 cubic yards of earth and deposited it in the prism of the canal.

The only remedy suggested is to cut a new channel and carry the waters of the creek on a line parallel with the canal, and discharge them into the Oneida creek, immediately above the aqueduct.

This would in no way interfere with the use of this water as a feeder on the plan now in operation, and would entirely relieve the existing difficulty. No estimate has yet been made as to the cost of this improvement.

New lock gates have been prepared for the Syracuse weigh lock, lock Nos. 47, 48 and 49, and materials delivered for others. A new set of gates are framed and ready for insertion in lock No. 50, and materials for use in cases of emergency, have been liberally prepared on sections Nos. 7, 8 and 9—by the superintendent, to be used in cases of emergency by the repair contractor, and when so used to be charged over to the contractor at what they may have cost the State.

OSWEGO CANAL.

Oswego Weigh Lock.

In pursuance of act, chapter 484, Laws of 1863, the Canal Commissioners decided to construct a weigh lock on the berme bank of the Oswego canal, in the city of Oswego. The act above mentioned "appropriated out of any moneys appropriated for extraordinary repairs on the middle division of the canal the sum of thirty thousand dollars" ($30,000) for this purpose. The Commissioners put the work of constructing said lock under contract on the 26th of October, 1863. The work was commenced last spring and was prosecuted through the summer, though not to completion. The great scarcity of labor during the past season was sensibly felt on this work, and has prevented its completion, but the work is in such a condition that the completion of the lock, with all its appurtenances, early the coming season

may be confidently relied upon, and, when brought into use, it will be found to fully justify the expenditure, by relieving the other weigh-locks of a duty that they are unable to perform, without great hindrance to navigation. The whole amount expended up to the close of the fiscal year is $6,289. The appropriation was made May 5th, 1863, and will expire May 5, 1865. A re-appropriation of $23,711, balance, will be imperatively necessary.

Dams.

Of the six old wooden dams upon this canal, the rebuilding of one at Phœnix, and dispensing with one known as Horse Shoe dam, have been provided for, and it is recommended that the remaining dams be reconstructed at the earliest practicable day. These structures have been in use since 1827, and navigation relying entirely upon them for its maintenance may be considered at least precarious, and the consequences resulting from the failure of any one of them, must be of the most serious nature.

Phœnix Dam.

The rebuilding of the dam at Phœnix was placed under contract July 26, 1864. The dam is to be of dressed lime stone, and by the law authorizing its construction only of "such height as may be necessary to maintain seven feet depth of water in the canal" above the dam with no unforeseen disasters, this dam may be completed during the coming season.

Horse Shoe Dam.

Act, chapter 475, Laws of 1864, provides that "the Canal Commissioners are hereby authorized to rebuild, at the earliest practicable time, the dam on the Oswego river at Phœnix, and the Horse Shoe dam on said river."

Section 2, of said act, provides that "the engineer in charge of said canal shall cause an estimate to be made of the expense of constructing a berme bank from lock No. 1 to Horse Shoe dam, and if the cost to the State of constructing such berme bank shall not exceed the cost of rebuilding said dam of stone, then the Canal Commissioner is authorized and required to construct said berme bank.

In accordance with said act the engineer made an estimate of the two plans, showing a large difference in favor of the berme bank; thereupon the construction of the berme bank was

approved by the Canal Commissioners and placed under contract; another season will be required to complete it.

The road bridges at Phœnix and Green Point have been rebuilt upon an improved plan, and several others have been rebuilt upon the original plan, or thoroughly repaired during the past season.

A new set of flood gates have been constructed on the Liverpool level at Green Point.

The following bridges across the Oswego river will require rebuilding another season, viz: One at Cold Spring, and one at Belgium, also the towing-path bridge across Oneida river at Three River Point.

CAYUGA AND SENECA CANAL.

The improvement in the harbor at Geneva is completed as far as at present contemplated, or as the demands of navigation seem to require.

A pier has been constructed in the Seneca river, near Chamberlain's dam, to protect the adjacent property from damages arising from the water necessarily discharged over the dam in time of high water.

The cost of this work amounted to $1,400.68. The towing-path bridge over the outlet of Cayuga lake is in very bad condition, and will be rebuilt after the close of navigation.

Enlargement section No. 7 was not entirely completed at the time fixed by the Legislature for closing up all contracts for enlargement work. The towing-path bank should be raised and strengthened.

The probable cost to complete this section, in accordance with the plan of enlargement, would reach $5,000.

A good deal of difficulty has been experienced the past season at the crossing of Seneca river below lock No. 6.

A feeder should be constructed to keep boats off the old brush and stone dam at that point.

CHENANGO CANAL.

Last spring grade stakes were set the entire length of this canal to govern the contractors in excavating the deposit from the prism of the canal. A large amount of material was removed on each of the repair sections, and it is believed that the channel was never in a better condition for its whole length than on the

opening of the canal last spring, and but for the scarcity of water no difficulty would have been experienced. The re-construction of Kingsley brook reservoir will, without doubt, relieve this canal from all embarrassments of this kind in future.

Locks Nos. 86, 87, 99, 104 and 109 have been rebuilt since last report, and lock No. 100 is under contract to be rebuilt the present season. The locks upon this canal will, before many years, require very general repairs, and in many cases to be entirely rebuilt.

The great fault of all the structures upon this canal is the poor quality of the stone used. In many instances the walls are crumbling away, and on taking them down scarcely a stone is suitable to be relaid.

Many bridges have been extensively repaired, and several have been rebuilt.

The feeders on section No. 1 will be bottomed out before the opening of navigation next spring, which will no doubt largely increase the facilities for supplying the summit level with water.

CHEMUNG CANAL.

During the suspension of navigation last winter locks 5, 13, 15, 16, 17, 18 and 20 were thoroughly repaired by removing the sides as low as the necessities of the case required, and rebuilding them of new timber. Locks repaired in this manner will answer the demands of navigation for many years, and it is probably more economical than rebuilding them entire during the present high prices of labor and materials. There are but nine locks remaining of those built in 1840 and 1841, and it is essential that those be repaired immediately, as they are completely decayed and worn out, and are a great source of hindrance to navigation, as well as being liable at any time to fail.

Many of the bridges have been rebuilt, repaired and raised to correspond with the increased depth of water now required to maintain navigation of boats drawing four feet depth of water. Since it seems to be a settled policy to permit a draft to boats of four feet instead of three and a half feet, for which the canal was constructed, the raising and strengthening of the banks in many places is imperatively demanded for the safety of navigation. Some work of this character has already been done, but much more still remains if the present policy is continued.

CROOKED LAKE CANAL.

The repairs upon this canal have always been heavy in proportion to its length, and must continue to be so until its banks are perfectly protected against the outlet of Crooked Lake, which flows immediately in rear of the towing-path bank. The freshet of July 28, 1863, left hardly a chain of canal uninjured, and during the early part of the present season a large amount of work has been done to complete the repairs of damage then done, and to further protect the bank against a recurrence of the injury, work to the amount of $4,059, has been done under this head.

The feeder trunk at lock 27, also carried away in July, 1863, has been reconstructed upon an improved and more secure plan at an additional cost to the State of $1,334.65.

The road bridge at "4 locks," has been rebuilt with stone abutments upon change of plan, at an expense to the State of $1,399.40.

The bridges upon this canal are all in good condition except two. These should be rebuilt immediately.

Another freshet occured in June last which delayed navigation three days, but the injury to the banks of the canal was small in proportion to that of 1863.

The structures upon this canal are generally in good condition. The locks of which there are 27, are of the composite plan. The masonry is durable, but the timber facing of chambers requires constant repairs or renewals.

The towing-path on upper or lake level has not been in use for several years, and the wants of navigation does not seem to require its maintenance.

Improvement of Chemung Canal Feeder at Corning.

This work was authorized by chap. 165, Laws of 1863, passed April 17th, and appropriated the sum of $20,000. It was put under contract July 22, 1863. The plan, as decided by the then Canal Commissioners, was to cut a channel so as to relieve an elbow in the river, and also to raise the bank to sufficient height to prevent an overflow in time of high water in the Chemung river. This stream is greatly affected by rain, and on several occasions has risen so high as not only to overflow its banks, but has caused a great destruction of public and private property. During the past season an instance of this kind occurred, and very seriously damaged the contractors by sweeping away a large

portion of their work. The village of Corning is a very important point for the shipment of lumber and coal on the Chemung canal, and those engaged in forwarding these articles (which pay at least 75 per cent. of all the toll), have suffered immense losses from the want of proper protections against these floods. The plan of this improvement cannot be carried out with the amount appropriated. Indeed, that amount is already very nearly expended, and the work is but about half completed. It will require $20,000 more to finish what is already commenced. It is apparent that if abandoned now, what is done, will be undone by the river freshets in a few weeks or months. It would seem to be true economy, therefore, on the part of the State, to finish up the work, and thus make the improvement a permanent one.

The accompanying map shows the proposed plan of improvements above mentioned.

Canal Navigation in 1864.

The past year has been remarkable for the great drouth in the months of June and July. During these months the natural feeders to the canals were, in some instances, wholly dried up, and the supply of water in all, was materially reduced. At one time serious apprehensions began to be entertained lest navigation might be wholly suspended. The reservoirs were the only reliance during the unprecedented drouth, and though heavily taxed and greatly reduced, they did not utterly fail to afford a supply, (except on one canal,) ere the timely rain came to replenish these almost exhausted fountains. But for the new reservoir at De Ruyter, completed last year, the supply of water would have failed, and the country realized the disastrous consequences of a suspension of canal navigation. The experience of the past year has been enough to convince any careful observer of the propriety and practicability of constructing the DeRuyter reservoir, if not to demonstrate the theory that reservoirs constitute the safest and always most reliable way of supplying a canal with water.

There have been no detentions to navigation by break or otherwise on the Erie canal, on this division, during the past season, beyond eight or ten hours, to make some slight repairs upon lock gates. A full and uniform depth of water has very generally been maintained. The Long Level, always a difficult one to keep up, has been kept up in excellent condition the entire season, though heavily taxed during the drouth by the demand for

water required at its eastern end, where the feeders almost entirely failed.

The Oswego canal has escaped all hindrances to navigation, except for three days, to repair lock 14, and four days to rebuild and replace the gates, which went entirely out on lock No. 3.

The Chenango canal has been less fortunate than any other on the Division. Detentions have been frequent and unavoidable, mainly arising from the scarcity of water. Very soon after the construction of this canal, which is fed chiefly (section 1 wholly), by reservoirs, the Kingsley brook reservoir was wholly destroyed, and has never been rebuilt. The business for fifteen or twenty years has been so small that water enough was furnished by the remaining reservoirs. The past four or five years, however, has shown a gradual increase of business; and in the past season at least a hundred more boats have been in motion than ever navigated the canal before. This large increase of boats and consequent lockages, at one time so exhausted the supply of water as to render the navigation difficult, and at times impossible. Especially was this the case on section 1, which is thirty-one miles in length, having upon it eighty-one locks, all dependent upon the summit level for a supply of water, and that level upon the reservoir. The Kingsley brook reservoir will be so far rebuilt the coming winter as to be partially brought into use next spring, and thus obviate, in the future, a recurrence of the embarrassments of the past. As the troubles have been so frequent and so great, much blame has been attached to the officers in charge of the canal. The Commissioner deems it his duty to say that from his personal knowledge, he thinks such charges unjust, and believes the officers have been active and diligent in the full discharge of their duties. The summer was remarkably dry; this, with the other causes mentioned, contributed to make the past season the most difficult one to sustain navigation ever experienced since the canal was constructed.

The Chemung canal and feeder has been in very good condition (for such a canal) the past season. No breaks have occurred to hinder navigation, and the difficulties arising from the extreme dry season have not been as seriously felt on this, as on some other canals. This canal was badly constructed in the beginning, sufficiently well, however, to answer the demands then made upon it. The construction of this work was completed in the fall of 1831; the total length is 39 miles and

the cost of construction was less than $315,000. The business has rapidly increased from year to year, and the day is not far distant when a large expenditure of labor will be required in extraordinary repairs, sufficient to greatly increase its capacity, in order to answer the demands made upon it. Appropriations for the improvement of our *lateral* canals if made, are generally small and made with reluctance, while liberal amounts are readily showered upon the great artery—the Erie. While too much may not have been done for the latter, it is too apparent that the former—the tributaries of trade to the Erie—have been, to some extent at least, neglected.

ONEIDA LAKE CANAL.

To the condition of this canal and the causes leading to it the Commissioner invites the attention of the Legislature. The canal was purchased by the State of the Oneida Lake Canal Company, in pursuance of an act passed May 11, 1840, (see Session Laws of 1840, chapter 258) for the sum of fifty thousand dollars. From that time on to the spring of 1863, the canal was kept in repair and used by the State. In the winter and spring of that year the Canal Commissioners advertised and let the work of rebuilding the locks, in pursuance of chapter 46, Laws of 1860, and chapter 486, Laws of 1862. The contractors entered upon and commenced the work, tearing up the old locks (which are entirely destroyed) and bringing on material for rebuilding. Estimates for labor and material were made by the Engineer for which the then Commissioner made draft on the Auditor of the Canal Department, amounting in the aggregate to $3,315 on which the Auditor refused payment, owing to a defect in the laws under which the contract had been made. Since the spring of 1863 the canal has been wholly useless, and is now in that disabled condition. An effort was made at the last session of the Legislature to amend the act, but failed. Since the purchase of this canal by the State large amounts have been invested by individuals in manufacturing and other interests, dependent for success, to a great extent, upon the transportation of products upon this canal. The Commissioner respectfully suggests that the obligation of the State, under its Constitution "not to sell lease or *otherwise dispose* of any of the canals," applies to this canal as fully and completely as to any other; if so, then the duty of the State in reference to this work is clear and unquestiona-

ble, no matter whether the canal is a "paying one" or not—no matter whether its location was the best which could be made or not. The mandate of the Constitution is paramount to all minor considerations. For such reasons the Commissioner earnestly recommends that your honorable body make such an appropriation for this purpose as will put this canal in navigable condition.

CROOKED LAKE CANAL.

This canal is only eight miles in length winding its way from Crooked Lake at Penn Yan, to the Seneca Lake at Dresden. It was completed in the autumn of 1833, and cost $156,776. It has 27 locks, and is undoubtedly the most difficult canal to keep in good navigable condition of any in the State. With high mountains upon one side and the outlet of the lake upon the other, it is in constant danger of being filled by the wash of *debris* from the former and swept away by the fury of the waters of the latter. The past season it has escaped disasters in a very remarkable degree, and the navigation has been, as compared with some years, uninterrupted.

EXTENSION OF THE CHENANGO CANAL.

This important work was authorized by act chapter 185, Laws of 1864, pssed April 15. The first section provides for the levy of a tax of three-sixteenths of a mill in each of the years 1864 and 1865. The second section appropriates from the proceeds of these taxes the sum of $550,000 to the extension of the Chenango canal, and prohibits any expenditure "until the Canal Commissioners of this State shall have obtained a guaranty satisfactory to them, from parties authorized to execute the same, that canal boats owned in this State shall have a perfect and permanent right to navigate the canal leading from the State line to the coal mines of Pennsylvania, upon terms which said Commissioners shall deem just and equitable."

The third section requires that the locks "shall be of a size and capacity not less than those upon the Pennsylvania North Branch canal."

The fourth section authorizes and requires the Comptroller to "make a temporary loan in anticipation of the collection of the taxes," and provides for the payment of such loan. Immediately after the passage of the law, the Commissioner opened a corres-

pondence with the North Branch Canal Company of Pennsylvania, which finally resulted in a compliance by that company with a requisition of the Board of Canal Commissioners, that boats from this State "shall have a perfect and permanent right" to navigate said canal upon the same terms and conditions as the boats of said company. For the faithful performance of this agreement the company executed a bond to the people of the State of New York in the penal sum of one hundred thousand dollars ($100,000). Immediately after the execution and filing of the bond in the Canal Department, directions were given to commence the survey of the route, under the charge of Engineer J. P. Goodsell, who will prosecute it as vigorously as possible. It is confidently expected that the survey, maps, plans and estimates will be so far completed as to enable the Commissioners to advertise and put the work under contract previous to the first day of April next.

It is the opinion of the Commissioner that the great importance of this work—not only to the consumers of coal, but to the State itself, in connection with the Chenango canal—would justify the Legislature in providing the requisite means for a more speedy construction than the present law seems to contemplate. If it be true, as those best advised on the subject claim, that this extension of the canal directly to the immense coal fields of Pennsylvania will assure an increased amount of shipments of at least two hundred thousand tons of coal per annum, seeking a transportation to market through its medium, the practicability of a more speedy construction is apparent. If the foregoing estimate approximates correctness, then it is evident that what is paid by tax to construct this work will be repaid with interest to all the consumers of coal, and their number is increasing from year to year in rapid ratio.

Montezuma Marshes.

The bridge at Jack's reefs—constructed by the State, spanning the State ditch, a distance of 80 feet—is in a dilapidated condition, and should be rebuilt. As this structure is not included in any repair contract, if rebuilt or repaired by the State, it can only be done by special direction of the Legislature. The cost of rebuilding will be about $500. It is recommended.

The Repair Contract System.

There is a just and growing hostility to the present repair contract system, among those most familiar with its practical operations. Theoretically, it may seem feasible, but when reduced to practice, it, like many other theories, explodes itself, and will be found, if not already so, a most expensive and dangerous one to the State and its interests. Contractors are now its most devoted friends and strenuous advocates, while forwarders, boatmen and others interested in good navigation and the safe-keeping of the canals, almost universally disapprove, if, indeed, they do not condemn the system. Contractors, like other men, endeavor to make money. They have a yearly compensation for keeping the canals in repair. What they can avoid doing in repairs is more profitable to them than what they perform. A dollar saved is emphatically as good as a dollar earned.

Since this system has been in operation the State has annually expended large amounts in "extraordinary repairs." These expenditures have largely contributed to keep the canals in passable condition, and yet with all the expenditures for "ordinary" and "extraordinary" repairs upon them, they can hardly be said to improve in condition under the practice from year to year. Every season demonstrates more fully the utter impracticability of the system itself.

If the proprietor of an extensive wollen or cotton factory would make the experiment of letting by contract, in gross, the ordinary repairs of his buildings, the machinery and implements; or a farmer make a covenant with his neighbor to put and keep his farm in good condition, including all his farm buildings, fences, house and household furniture, farming implements, feeding of farm stock, &c., &c., it is quite probable that a large sum would ere long be wanted for "extraordinary repairs," to put the factory or farm in such a condition that profits could be realized from either, while the owners of both would find themselves involved in difficulty from which they would gladly be extricated. The experience of the past has shown that he who has a canal repair contract by which he realizes satisfactory profits, is content, while he who experiences an opposite fortune, either abandons the work himself, when a large expenditure, from any cause, becomes necessary, or by neglect of his contract obligations finds his contract abandoned, by the Contracting Board. In

either case, his bail is prosecuted, which induces him to appeal to the Legislature for relief, which he seldom fails to obtain. There are some noble exceptions to this rule; there are some contractors who seem disposed to fulfil to the letter, their contract obligations.

In awarding repair contracts the Contracting Board is required to award them to the lowest legal bidder, without reference, either to his experience in canal work, or his ability to perform it. It is easy to see that such a requirement, opens a door to a competition, and puts a fully qualified, capable, and reliable bidder upon the same footing with one in every respect his opposite.

It may be difficult to substitute a system for keeping the canals in repair, which will be free from objection.

The old superintendent system became odious, because of the vast amounts expended, but it should not be forgotten that an old canal, constructed as the Erie was, with its timber docking, is far more expensive to keep in repair, aside from the bottoming out, than the new canal. with its wall banks and permanent structures; besides in the construction of the enlarged Erie and Oswego canal, a large amount of construction work was charged to superintendents' accounts for repairs, as the records in the Canal Department testify. But it may be fruitless to discuss this subject farther. The abolition of the repair contract system may be deferred, perhaps for years, but it is certain at no very distant day. The sooner the better for the great canal interests of the State.

All of which is respectfully submitted.

B. F. BRUCE,
Canal Commissioner.

SYRACUSE, *Oct.* 1, 1864.

STATEMENTS ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONER OF THE MIDDLE DIVISION OF THE NEW YORK STATE CANALS, FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1864.

STATEMENT No. 1, *showing the canals, feeders and reservoirs in charge of the Commissioner.*

CANALS.

	Miles.
1. The Erie canal from Higginsville, Oneida county, to the county line between Seneca and Wayne counties, including Limestone, Butternut and Nine Mile Creek feeders, each navigable one mile	71.93
2. The Oneida Lake canal, including towing-path on Wood creek, six miles, the Oneida feeder, falling into the canal at Durhamville, and navigable one mile	7.
3. The Oswego canal	38.
4. Oneida River improvement	20.
5. Seneca River towing-path	5.75
6. Seneca River improvement, at Baldwinsville, including three-quarters of a mile of canal slack-water navigation, without any towing-path from Baldwinsville to Jack's reefs	12.50
7. Cayuga and Seneca canal	22.77
8. Cayuga inlet	2.
9. Crooked Lake canal	8.
10. Chemung canal	23.
11. Chemung canal feeder	16.
12. Chenango canal	97.
Total	323.95

RESERVOIRS AND FEEDERS.

	Areas, acres.	Depth, feet.	Length of feeder, miles.	
Erieville	340	21¼	20	
Hatch's lake	134	10	8	to Bradley brook reservoir.
Eaton brook	254	50	8	
Bradley brook	134	25	3	to Eaton brook feeder.
Leland pond	173	8	½	
Woodman's lake	148	11	¼	
Madison brook	235	45	2	
Skaneateles lake	8,320	..	9	
Canenovia lake	1,778	4½	10	
De Ruyter	626	18¼ average.	25	

TABLE No. 1.

Showing the names of canals, superintendents, and repair contractors thereon, date and expiration of contracts, contract prices previous to July 1, and contract prices thereafter, under chap. 252, Laws of 1864, by resolution of Contracting Board, passed July 15; also showing the percentage of award added to former contract prices, and the amount of allowance previous to July 1.

CANAL.	No. of section.	Superintendent.	Contractor.	Original contract price.	Per cent. allowed.	Present contract price.	Am't extra allowance.	Date of contract.	Contract expires.
Erie	7	Joseph Breed	Thomas Gale	$3,490 00	.62	$5,653 80	$2,704 75	May 1, 1861	April 30, 1866
Erie	8	Joseph Breed	*Charles Nichols	4,940 00	.60	7,904 00	3,705 00	Nov. 1, 1862	*Expired.
Erie	9	Joseph Breed	C. J. Hayden	7,000 00	.61	11,270 00	5,337 50	May 1, 1861	April 30, 1866
Chemung	All.	H. P. Haskin	Jarvis Lord, assignee	15,960 00	.60	25,536 00	11,970 00	April 1, 1862	Dec. 31, 1866
Chenango	1	C. H. Smith	A. Peck & Co	13,990 00	.50	20,985 00	8,743 75	May 1, 1862	April 30, 1866
Chenango	2	L. R. Hitchcock	†Jno. P. Smith	5,600 00	.50		3,848 39		†Expired.
Chenango	3	L. R. Hitchcock	Snook & Beebee, assignee.	7,000 00	.53	10,710 00	4,637 50	May 1, 1861	April 30, 1866
Oneida Lake	All.	Joseph Breed	W. R. Chapman	2,375 00	None.	2,375 00		Oct. 1, 1860	Sept. 30, 1865
Oswego	1	A. P. Hart	William Avery	9,000 00	.35	12,150 00	3,937 50	May 1, 1862	Dec. 3 , 1866
Oswego	2	A. P. Hart	Charles E. Case	11,900 00	.50	17,850 00	7,437 50	May 1, 1862	Dec. 31, 1866
Cayuga and Seneca	All.	Joseph Breed	George M. Case	9,950 00	.41	14,029 50	5,099 37	July 1, 1862	Dec. 31, 1866
Crooked Lake	All.	H. P. Haskin	Farley Holmes, assignee	3,869 00	.55	5,996 95	2,659 94	Oct. 1, 1860	Sept. 30, 1865
Totals				$95,074 00		$134,460 25	$60,081 20		

* Abandoned September 30, by request of contractor.

† Abandoned August 15, by request of administrator of late contractor, and Section relet Oct. 1, to Daniel McGarry, at $16,400 per annum.

[STATEMENT No. 2—*Section Description and Expenditures.*

ERIE CANAL.

The Middle Division of the Erie canal extends from the eastern bank of the Oneida Lake canal to the east line of Wayne county, and comprises three repair sections, as follows:

REPAIR SECTION No. 7.

This section embraces twenty-seven miles of the Erie canal, extending from its eastern boundary to the Limestone creek feeder; the Oneida creek feeder, two miles in length, navigable from Durhamville to Oneida, a distance of one mile; and the Erieville and Cazenovia Lake reservoirs and Chittenango feeder. Total 29 miles. The structures are: 2 aqueducts, 23 culverts, 1 wooden lift lock (Oneida feeder), 5 iron bridges, 3 wooden farm bridges, 15 wooden road bridges, 1 guard gate (Oneida feeder), 3 waste weirs, 3 feeder dams, 2 guard gates.

The payments during the first quarter by the late Commissioner were as follows: *

For ordinary repairs under the annual contract		$741 63
By present Commissioner during balance of year:		
Repairs per contract	$3,455 39	
Extra allowance (see Table No. 1)	2,704 75	
Reconstructing Beebee's bridge on change of plan, increased cost	346 79	
Reconstructing Owlsville bridge on change of plan, increased cost	313 82	
On account of new bridge at Higginsville	2,856 00	
Culvert near Canastota, final payment	1,273 86	
Part salary Canal Commissioner	233 35	
		11,183 96

SUPERINTENDENT'S EXPENDITURES.

Repairs dam above Limstone creek feeder	$145 03	
Opening roadway through bridge approach on Canal street (West bridge), Canastota	1,005 96	
Miscellaneous	17 92	
Salary superintendent and clerk hire	301 57	
		1,470 48

MISCELLANEOUS EXPENDITURES.

By late Commissioner during first quarter		2,178 68
J. W. Warner, stove, Commissioner's office	$6 75	
Chas. Scherff, janitor, do do	12 00	
E. Drake, repairs stove do do	7 35	
Jno. Bedford, fuel, do do	3 40	
E. R. Holden, fuel, do do	5 00	
McCarthy, Redfield & Co., repairs Engineer's stove	6 81	
Syracuse water works, supplying State building	7 50	
‡S. C. Hayden, furniture, Commissioner's office	22 34	
‡W. H. Mink, furniture, Commissioner's office, Albany	5 75	

* The amounts enumerated throughout these tables as the expenditures of the late Commissioner during the first quarter of the fiscal year, are principally taken from his report for 1863.

† Whenever an expenditure is not chargeable directly to a *single section*, and is for the benefit of the *whole* canal, it is equally *divided among the sections* of canal to which it is charged.

‡ The three divisions alternate in paying the expenses of the Contracting Board and Board of Canal Commissioners, together with the general miscellaneous expenses of printing, stationery, &c. The Middle Division has been chargeable with such expenses during the last fiscal year.

Cornelius Cushing, janitor	14 02	
Mary Aldhoff, cleaning offices	6 68	
Robert Thompson, whitewashing over and around weigh lock scale	12 00	
American Express Company, freight	8 56	
Western Union Telegraph Company, Syracuse, messages	52 43	
Western Union Telegraph Company, Albany, messages	21 10	
Jacob Schuyler, moving barn at New Boston, in 1857	9 00	
Chauncey Watson, furniture, Commissioners' office, Albany	51 70	
Seymour Pratt, borrowing pit	50 00	
J. Burton & Co., mirror, Commissioners' office, Albany	3 96	
Joanna Tehan, cleaning offices	5 33	
R. C. Reals, flag staff for State buildings, Syracuse	13 33	
Hiscock & Brother, ice for Commissioners' office	2 00	
Wynkoop & Brother, blank books and stationery	59 00	
B. F. Bruce, traveling expenses	99 99	
P. H. Agan, P. M., Syracuse, postage	34 12	
Geo. Dawson, P. M., Albany, postage	12 00	
E. H. Bender, stationery, Albany	21 93	
C. Van Benthuysen, binding Commissioners' report	18 75	
Weed, Parsons & Co., printing blanks	95 00	
D. H. Bruce, clerk to Canal Commissioner	326 84	
W. W. Wight, clerk Contracting Board and travel	32 00	
W. T. Loomis, clerk Board Canal Commissioners	20 84	
D. P. Forrest, clerk Contract'g Board and Board Com'rs, and travel	258 93	
E. B. Murdock, closing final account De Ruyter reservoir	18 00	
J. C. Laass, inspector	40 00	
John O'Hara, do	260 83	
Charles Pine, driving grade stakes, spring repairs	3 00	
C. A. Beach, inspector	73 16	
Howard Soule, Jr. inspector	104 00	
W. D. Dunning, Engineer's assistant	92 18	
		$1,909 59
Total on section		$17,484 54

Repair Section No. 8.

This section extends from Limestone creek feeder to lock No. 50, above Geddes, including Limestone and Butternut feeders, each navigable one mile; total 13 miles. The structures are: 3 double stone lift locks, 2 aqueducts, 4 culverts, 1 weigh-lock, 1 wooden farm bridge, 3 wooden feeder bridges, 1 wooden tow-path bridge, 9 wooden road bridges, 2 iron tow-path bridges, 7 iron road bridges, 1 iron foot bridge, 1 feeder dam, 1 waste weir, 3 lock houses, 1 State shop.

The amount expended on this section during the fiscal year is as follows:

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under the annual contract	$1,049 73
For constructing iron bridge at Syracuse, Clinton street	2,141 28
For repairing break on Butternut creek feeder on change of plan, and for improved lock valves	3,012 76
For completing De Ruyter reservoir	44,686 88
For cement wall in Syracuse, change of plan	2,030 82
	$52,921 47

The payments during the balance of the year were for:

Repairs per contract	$3,956 46	
Extra allowance (see table No. 1)	3,705 00	
Per cent paid over on abandonment of contract	1,346 31	
Part salary of Canal Commissioner	233 32	
Cutting down arch of railroad tunnel	208 53	
Raising abutments Clinton street bridge	449 65	
New bridge over Orville feeder	299 20	
		$10,198 47

Superintendents' Expenditures.

By P. P. Midler during first quarter:

Pointing cellar walls in Syracuse	$40 25	
Strengthening banks at Burdick's bridge and at Butternut creek aqueduct	1,886 43	
Assisting boats in crowd	27 38	
Labor and material building State shop at Lodi	395 41	
Bearing piles for securing banks on Long Level	120 00	
Clerk hire	90 00	
Miscellaneous	8 18	
		2,567 65

By J. Breed during balance of year:

Repairs on State buildings	$64 58	
Watching De Ruyter reservoir	145 03	
Vertical walls at Lodi, foot locks 47 and 48	7,811 21	
Wall at head of lock 47	2,476 90	
Inspector of above named work	115 00	
Pointing walls to stop leaks in Syracuse	27 46	
Oak for lock gates	1,826 65	
Labor framing lock gates	83 75	
Floor over weigh lock and coal bin, etc	68 14	
Repairs roof State buildings	31 90	
Irons for scale of weigh lock	11 00	
Roller on corner of tow-path bridge abutment	19 00	
		12,680 62

Miscellaneous Expenditures.

By late Commissioner during first quarter	2,178 88

By present Commissioner during balance of year:

E. R. Holden, agent, fuel for Commissioner's office	$37 00
H. C. Brower, repairs of locks	5 89
Alfred Tily, gas fitting	5 37
Wynkoop Brothers, stationery and blank books	59 00
John Bedford, fuel, Commissioners's office	4 30
Ira Seymour, repairs water pipes	10 59
S. C. Hayden, furniture, Commissioner's office	29 00
W. H. Mink, do do Albany	5 75
Cornelius Cushing, janitor	13 07
Mary Aldhoff, cleaning offices	8 34
Robert Thompson, whitewashing over and around weigh lock scale,	12 00
John Brandon, inspector's rod	3 50
C. Van Benthuysen, binding Commissioners' report	18 75
Weed, Parsons & Co., printing blanks	95 10
Chauncey Watson, furniture, Commissioners' office, Albany	51 70
E. H. Bender, stationery, do do	21 91
Jas. Burton & Co., mirror, do do	3 96
Baumgrass Bros., painting four pair blinds	5 25
Joanna Tehan, cleaning offices	5 33
R. C. Reals, flag staff State buildings	13 33
Hiscock & Bro., ice, Commissioners' office	2 00
D. H. Bruce, clerk, Canal Commissioner	316 34
W. W. Wight, clerk Contracting Board, and travel	32 00
D. P. Forrest, do do do	259 05
J. C. Laass, inspector	40 00
C. A. Beach, do	73 16
H. Soule, jr., do	104 00
W. D. Dunning, Engineer's assistant	92 16

John O'Hara, inspector	$65 84	
W. L. Crossett, do	50 00	
B. F. Bruce, traveling expenses	100 00	
American Express Company, Syracuse, charges	24 39	
Western Union Telegraph Company, Syracuse, messages	37 17	
do do Albany, do	22 65	
P. H. Agan, P. M., Syracuse, postage	19 12	
Geo. Dawson, P. M., Albany, postage	11 98	
		$1,659 99
Total on section		$82,206 09

Repair Section No. 9.

This section extends from the foot of lock No. 50 to the east line of Wayne county, embracing the Skaneateles lake and feeder, and the Camillus feeder, navigable one mile; total 35 miles.

The structures are: 3 double stone lift locks, 6 aqueducts, 2 waste weirs, 6 culverts, 1 wooden change bridge, 11 wooden road bridges, 6 wooden farm bridges, 11 iron road bridges, 1 iron foot bridge, 2 guard gates, 4 feeder dams, 3 receivers.

The payments during the first quarter by the late Commissioner, were as follows:

For ordinary repairs under the annual contract	$1,437 49
For securing banks of canal over the Cayuga marshes	10,559 85
For constructing stop gates and inserting composite valves	1,146 86
For constructing bridge at Weedsport, change of plan	970 82
Total	$14,065 02

The payments during the balance of the year were for:

Repairs per contract	$6,419 92	
Extra allowance, (see Table No. 1)	5,337 50	
Part salary of Commissioner	233 32	
		$11,990 74

Superintendent's Expenditures.

Additional protection to canal banks at Montezuma	$4,506 07	
		4,506 07

Miscellaneous Expenditures.

By late Commissioner during first quarter	$2,178 88	2,178 88

By present Commissioner during balance of year:

S. A. Steele, wood, Commissioner's office	4 25
N. Downes, stove pipe, &c.	5 94
Wynkoop Brothers, blank books and stationery	61 67
E. R. Holden, agent, coal	6 00
Syracuse gas light company, light, State buildings	28 98
B. F. Bruce, traveling expenses	100 00
Western Union telegraph company, Syracuse	54 05
S. C. Hayden, furniture and repairs	22 34
W. H. Mink, furniture, Commissioners' office, Albany	5 75
Cornelius Cushing, janitor	13 03
Mary Aldhoff, cleaning offices	6 66
Robert Thompson, whitewashing over and around weigh lock scale	12 00
Mrs. Elizabeth Morehouse, temporary damages at Port Byron	300 00
C. H. Moore & Co., temporary damages near east line Wayne county	150 00
C. Van Benthuysen, binding Commissioners' report	18 75
Weed, Parsons & Co., printing blanks	95 11
Chauncey Watson, furniture, Commissioners' office, Albany	51 70
E. H. Bender, stationery, do do	21 91
James Burton & Co., mirror, do do	3 96
Joanna Tehan, cleaning offices	5 34
Frank Torrey, watching water at Montezuma	252 00

R. C. Reals, flag staff on State buildings	$13 33	
Hiscock & Brother, ice, Commissioners' office	2 00	
Western Union telegraph company, Albany, messages	4 10	
P. H. Agan, postmaster, Syracuse, postage	32 62	
George Dawson, postmaster, Albany, postage	13 00	
American express company, freight	18 18	
D. H. Bruce, clerk, Canal Commissioner	312 24	
W. W. Wight, clerk Contracting Board and travel	18 00	
W. T. Loomis, clerk, board Canal Commissioners	20 83	
D. P. Forrest, clerk Contracting Board and travel	264 94	
C. W. Downes, inspector	18 00	
J. C. Laass, inspector	40 25	
C. A. Beach, inspector	73 18	
Howard Soule, jr., inspector	104 00	
W. D. Dunning, engineer's assistant	92 16	
John O Hara, inspector	65 83	
		2,312 10
Total on section		$35,052 81

OSWEGO CANAL.

Repair Section No. 1.

This section extends from Syracuse to Three River Point, and includes the Seneca River towing path and Baldwinsville canal. Total, 21½ miles.

The structures are: 4 stone lift locks, 1 composite lift lock, 1 wooden lift lock, 1 wooden guard lock, 4 composite culverts, 5 iron road bridges, 1 iron change bridge, 11 wooden road bridges, 4 wooden change bridges, 2 floating tow path bridges, 1 wooden river dam, 3 waste weirs, 4 lock houses, 1 State shop.

The payments during the first quarter by the late Commissioner, were as follows:

For ordinary repairs under the annual contract	$1,902 50	
For extra work performed under former Commissioners	8,029 00	
		$9,931 50

The payments during the balance of the year, were for:

Repairs per contract	$7,119 39	
Extra allowance, (see Table No. 1)	3,937 50	
Part salary Canal Commissioner	100 00	
Award by canal board under chap. 299, Laws of 1864, (repairs Mud Lock)	14,000 00	
On account of constructing weigh lock at Oswego, (in part, balance to section 2)	2,431 00	
On account of rebuilding Phœnix dam, (in part, balance to section 2)	806 50	
		28,394 39

Superintendents' Expenditures

By Elliott Harroun, during first quarter under direction of late Commissioner	$532 23	
By A. P. Hart, during balance of year—checking boats at Mud Lock, by direction of late Commissioner	75 00	
Snubbing posts along the line	59 06	
Miscellaneous	4 00	
Salary superintendent and clerk hire	300 00	
		970 29

Miscellaneous Expenditures.

By the late Commissioner during first quarter	737 11

By present Commiss'r during balance of year:

W. H. Carter, lighting beacon at Brewerton, 1863	$37 00	
Calvin O. Burt, rent towing path, Varrick canal	97 00	
S. C. Miller, publishing notice	6 75	
D. P. Forrest, clerk Contracting Board, and travel	26 75	
Howard Soule, jr., inspector	74 00	
C. A. Beach, inspector	59 75	
M. S. Kimball, inspector	316 00	
Jno. E. Forman, assisting engineer	47 50	
J. C. Churchill, counsel before Canal Appraisers	15 00	
D. F. Gott, do do	30 00	
J. N. Brown, publishing notices	25 57	
T. S. Brigham, do	16 52	
Charles E. Case, raising Three River Point bridge	247 57	
		999 41
Total on section		$41,032 70

Repair Section No. 2.

This section extends from Three River Point to Oswego, including the Oneida River improvement (43 miles). The structures are: 13 stone lift locks, 5 stone guard locks, 2 steamboat lift stone locks, 120x30, 5 wooden waste weirs, 7 wooden road bridges, 2 wooden road and change bridges, 6 wooden change bridges, 1 wooden river towpath and change bridge, 2 iron road bridges, 2 stone river dams, 7 wooden river dams, 1 aqueduct, 1 bulkhead, 1 draw bridge, 4 composite culverts, 20 lock houses, 1 State shop.

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under the annual contract	$2,528 73	
For re-constructing broken vertical wall at Oswego	1,111 02	
For constructing waste weir between locks 8 and 9	139 35	
For constructing new lock house at lock No. 15,	281 11	
For constructing new crib at Horse Shoe dam	1,036 76	
For repairs of pier above guard lock No. 2	232 47	
For dredging level above Fulton	1,545 00	
		$6,876 44

By the present Commissioner during balance of year:

Repairs per contract	$9,792 74	
Extra allowance (see Table No. 1)	7,437 50	
Part salary Canal Commissioner	100 00	
On account of five cribs at Big Mills	1,428 00	
On account of weigh lock at Oswego (part)	3,858 00	
On account of Phœnix dam	806 50	
		23,422 74

Superintendents' Expenditures.

By Elliott Harroun during first quarter	$105 16	
Assisting passage of boats	478 18	
		583 34

By A. P. Hart during balance of year:

Docking on Phœnix level	$183 12	
Raising berm bank on level No. 7	134 00	
Snubbing posts along the line	120 75	
Horse slip in towpath at Phœnix	290 48	
Watchman at Oswego	200 00	
Salary of superintendent and clerk hire	300 00	
Miscellaneous	4 00	
		1,232 35

Miscellaneous Expenditures.

By the late Commissioner during first quarter		$737 12
By the present Commissioner during balance of year:		
W. H. Carter, lighting beacon at Brewerton in 1863	$37 00	
Calvin O. Burt, rent towpath on Varick canal	97 00	
S. C. Miller, publishing notice	6 75	
American Express Company, freight	4 30	
Chas. E. Case, repairs Utica street bridge, Oswego	450 00	
Howard Soule, jr., inspector	74 00	
Chas. E. Case, incidental repairs	270 38	
M. S. Kimball, inspector	316 00	
C. A. Beach, do	59 75	
Jno. E. Forman, assistant	47 50	
Jno. Brandon, inspector's rod	3 50	
J. C. Churchill, counsel before Canal Appraisers	15 00	
D. F. Gott, do do	30 00	
J. N. Brown, publishing notice	25 59	
T. S. Brigham, publishing notice	16 53	
Chas. E. Case, raising Three River Point bridge	247 56	
		1,700 86
Total on section		$34,552 85

BALDWINSVILLE CANAL

Extends from the Oswego canal at Mud lock to Jack's reefs, a distance of 18.25 miles. It has principally slack-water navigation on the Seneca river, and is generally known as the "Seneca River towing path." The work is embraced in the repair contract for section number 1, Oswego canal. Its structures are: 1 guard lock, 1 lift lock, 1 railroad bridge, 1 float bridge, 2 road bridges, 1 dam.

Superintendents' Expenditures.

By Elliott Harroun, under direction of the late Commissioner in first quarter		$191 80
By A. P. Hart during balance of year:		
Repairing and replanking road bridges not covered by repair contract,	$95 50	
Raising and replanking guard lock not covered by repair contract	94 50	
Lock tending at Baldwinsville, lock not under repair contract	125 00	
Salary superintendent and clerk hire	166 64	
		481 64
Total		$673 44

ONEIDA RIVER IMPROVEMENT

Extends from Three River Point to Oneida lake, a distance of 20 miles, and is embraced in the repair contract for section No. 2, Oswego canal.

Superintendents' Expenditures.

Salary superintendent, clerk hire and miscellaneous	$253 28

CAYUGA AND SENECA CANAL.

This canal extends from the Erie, at Montezuma, to Sen lake, at Geneva, with a branch from lock No. 9 to East Cayt at the foot of Cayuga lake. Total miles in length, 23. ' structures are: 11 composite lift locks, 1 side lock at Sen Falls, 9 culverts, 1 pier at foot of Cayuga lake, 1 pier at foo Seneca lake, 7 iron bridges, 15 wood bridges, 5 dams.

The payments during the first quarter by the late Comi sioner were as follows:

For ordinary repairs under the annual contract	$2,114 37	
For improvement of pier and harbor, Geneva	3,531 00	
For award by Canal Board to Pringle & Claffy	808 30	
For miscellaneous expenditures	1,644 27	
For expenditures by superintendent	431 25	
		$8,5

By present Commissioner during balance of year:

Repairs per contract	$8,700 51	
Extra allowance (see Table No. 1)	5,099 37	
Part salary Canal Commissioner	100 00	
Excavating outlet Seneca lake (work done under late Commission'r)	11,611 00	
		25,5

Superintendents' Expenditures.

By P. P. Midler, under late Commissioner, lock tending, Mud lock, 1863	$162 00	
Lighting beacon at Geneva, in 1863	64 44	
Putting in docking and preparing foundation for waste weir, at Seneca Falls	378 51	
Salary superintendent	583 33	
		1,1

By Joseph Breed, under present Commissioner:

New gates and repairs, Mud lock	$743 66	
Lock tending, Mud lock, 1864	166 00	
Pier at Seneca Falls, to protect mill privileges	1,400 68	
Salary superintendent and clerk hire	123 33	
		2,4

Miscellaneous Expenditures.

G. V. Sackett, planting willows to strengthen canal banks	$29 14	
Johnson & Cronk, iron railing on bridge at Waterloo (ordered by late Commissioner)	83 75	
W. D. Dunning, Engineer's assistant	273 00	
D. Wheeler, lighting beacon at Geneva	24 00	
Joseph M. Ives, superintending inlet at Ithaca	89 52	
		4
Total on canal		$38,1

CROOKED LAKE CANAL.

This canal extends from Crooked lake, near Penn Yan Seneca lake, at Dresden—distance 8 miles. The structures : 27 lift locks, 1 guard lock, 6 waste weirs, 2 culverts, 14 brid 4 dams.

The payments during the first quarter by the late Com sioner were as follows:

For ordinary repairs under annual contract	$822 15	
Constructing guard lock at Penn Yan	9,707 00	
Repairing a break and improvements on change of plan, in consequence of said break	17,211 47	
Reconstructing a bridge on change of plan	1,846 45	
Miscellaneous expenditures	873 35	
		$30,480 42

By the present Commissioner during the balance of the year:

Repairs per contract	$3,498 99	
Extra allowance (see Table No. 1)	2,659 94	
Part salary Canal Commissioner	50 00	
Repairs, breaks by flood in 1863	4,059 11	
Feeder trunk at lock No. 27	1,334 65	
Reconstructing bridge at Four locks	1,399 40	
Guard lock at Penn Yan, constructed in 1863 (final)	2,428 50	
		15,430 59

SUPERINTENDENT'S EXPENDITURES.

Cutting recess deeper in guard lock	$126 52	
Dredging Penn Yan level by order of late Commissioner	$3,241 35	
		3,241 35

MISCELLANEOUS EXPENDITURES.

D. E. Whitford, inspector	$185 50	
		185 50
Total on canal		$49,444 39

CHEMUNG CANAL.

This canal extends from the head of Seneca lake, at Watkins, to Elmira, including the feeder from Horseheads to Knoxville, making a total distance of 39 miles of navigable canal.

The structures are: 2 composite locks, 13 timber locks, 1 timber guard lock, 38 old timber locks, 4 aqueducts, 13 waste weirs, 2 culverts, 1 dam and bulkhead, 3 road bridges, iron, 35 road bridges, wood, 14 farm bridges, 1 towing-path bridge, wood, 1 towing-path bridge across Chemung river.

The payments during the first quarter by the late Commissioner, were as follows:

For ordinary repairs under the annual contract	$3,391 50	
For constructing a waste weir	302 95	
For bridges under change of plan	3,736 95	
For extraordinary repairs	1,536 86	
For dredging Seneca Lake level	2,009 23	
For constructing bridge, Horseheads	680 00	
For improvement to give 4 feet draft to boats	2,483 22	
Miscellaneous expenditures	848 04	
Expenditures by superintendent	2,163 49	
		$17,152 24

By present Com'r during balance of year:

Repairs per contract	$14,503 40	
Extra allowance, (see Table No. 1)	11,970 00	
Final payment for constructing locks 12, 14, 34, 38, 39, 42, 44, 50, 51, and 52	1,862 08	
On account of constructing locks 5, 13, 16, 17, and 18, (under late Commissioner)	18,411 00	
Iron bridge on Church street, Elmira, (under late Commissioner)	1,420 93	
Bridge at Whitlock's on change of plan, increased cost to contractor	317 52	

Draw bridge at Elmira, (by direction of late Commissioner)	$5,000 00	
Constructing lock No. 20, (under direction of late Commissioner)	5,389 00	
Constructing lock No. 15, (under direction of late Commissioner).	4,522 00	
Work in river at Corning	7,667 00	
Bridge at Horseheads, (under direction of late Commissioner)	527 00	
Final payment for bridge across Catherine creek	544 94	
Part salary Canal Commissioner	200 00	
		$67,844 87

Superintendents' Expenditures.

By O. Allen, for dredging under direction of late Commissioner, during first quarter	.....	1,069 62

By H. P. Haskin during balance of year:

Repairs of State dredge and dump boats	$829 77	
Merchandize for same	15 03	
Moving dredge and dump boats from Watkins to Corning, setting up and watching same	191 50	
Foreman and engineer	78 00	
Waste weir at lock No. 7	93 06	
Miscellaneous	23 06	
Salary superintendent	500 00	
		1,730 42

Miscellaneous Expenditures.

Comstock & Cassidy, publishing notices to contractors, in 1863	$97 62	
Geo. W. Pratt, do do	18 50	
Curtiss, Butts & Co., do do	58 42	
T. B. Brown, do do	17 32	
Truair, Smith & Miles, printing circulars and blanks	11 50	
Geo. T. Hinman, stationery for office at Havana	9 68	
Erie Telegraph Company, messages for office at Havana	3 18	
Chas. Harris, fuel for office at Havana	2 10	
Estate of Peter Tracy, rent of office at Havana	38 00	
Geo. B. Leonard, affidavits	2 00	
J. H. Gallaher, repairs swing bridge, Elmira	7 13	
H. K. W. Bruce, counsel before Canal Appraisers	95 00	
Chas. Bramble, raising iron bridge, Havana	180 00	
D. E. Whitford, inspector (part for last fiscal year)	783 00	
C. W. Downes, inspector	375 00	
A. Baker, do	172 50	
H. Bailey, do	105 00	
L. F. Olney, do	301 50	
*T. M. Sherman, do	708 00	
E. K. Mandeville, do	468 00	
D. E. Whitford, miscellaneous disbursements	59 50	
		3,512 95
Total on canal		$91,310 10

ONEIDA LAKE CANAL.

This canal connects the Erie canal with the waters of Oneida lake, furnishing thirty miles of lake navigation, intersecting the Oneida River improvement, which forms a junction with the Oswego canal at Three-river Point. The Oneida Lake canal, proper, is six miles in length, and extends from the Erie at Higginsville, to the head of Oneida lake. The structures are: 7 wooden lift locks, 2 culverts, 1 towing-path bridge, 2 road bridges, 3 lock houses, 4 watch houses, 1 collector's office.

* Thirty-five per cent of the above amount for inspectors was incurred before the first day of January.

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under annual contract	$504 69	
Miscellaneous expenditure	271 64	
		$776 33

By the present Commissioner during balance of year:

Repairs per contract	$1,870 31	
Part salary Canal Commissioner	50 00	
		1,920 31
MISCELLANEOUS EXPENDITURES.		
Dam at its intersection with the Erie	784 00	
		784 00
Total on canal		$3,480 64

CHENANGO CANAL.

This canal extends from the Erie canal at Utica to the Susquehanna river at Binghamton—97 miles. It comprises three repair sections, as follows:

REPAIR SECTION No. 1.

This section extends from the junction of the Chenango and Erie canals, in the city of Utica, to the foot of lock No. 81, one mile south of the village of Hamilton, 31 miles. The following reservoirs are located upon it: Madison brook, Woodman's pond, Leland's pond, Bradley's brook, Hatch's lake, Kingsley's brook and Eaton's brook, all of which are in the southern part of Madison county. Connected with the section are 13¾ miles of feeders. Total miles, canal and feeders, 44¾ miles. The structures are: 77 composite lift locks, 4 stone lift locks, 4 wooden trunk aqueducts, 1 stone arch culvert, 1 guard lock, 12 arch culverts, 7 box culverts, 9 waste weirs, 3 iron bridges, 44 wood bridges, 30 bridges on feeders.

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under annual contract	$2,972 85	
Balance for constructing Garden street bridge, Utica	17 00	
Expenditures by superintendent, including salary	137 22	
		$3,127 07

By the present Commissioner during balance of year:

Repairs per contract	$13,503 62	
Extra allowance (see Table No. 1)	8,743 75	
Reconstructing lock No. 86 (under late Commissioner), final payment	4,946 91	
Excavating original bottom in spring of 1864	262 05	
Part salary Canal Commissioners	100 00	
		27,556 33

SUPERINTENDENT'S EXPENDITURES.

Salary and miscellaneous	$680 93	
		$680 93

MISCELLANEOUS EXPENDITURES.

By late Commissioners during first quarter	$716 99	716 99

By present Commissioner during balance of year:

Comstock & Cassidy, publishing notices in 1863	$42 95	
M. D. Raymond, publishing notices	35 56	
Truair, Smith & Miles, printing blanks and circulars	10 00	
C. A. Beach, inspector	39 83	
Jno. O'Hara, do	195 00	
N. M. Gregg, do	51 25	
O. H. Bogardus, do	258 50	
		633 09
Total on section		$32,081 32

REPAIR SECTION No. 2.

This section extends from the foot of lock No. 81 to and including the first farm bridge above lock No. 100; distance 34 miles. The structures are: 18 composite lift locks, 8 wooden trunk aqueducts, 6 waste weirs, 9 bridges on feeders, 3 iron bridges, 60 wooden bridges, 13 arch culverts.

There are six feeders with an aggregate length of four miles, with dams to the length of 1,000 feet.

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under the annual contract	$1,189 98	
On constructing locks	4,933 09	
Reconstructing bulkhead	309 06	
Final for constructing Sherburne aqueduct	2,149 13	
		$7,681 26

By the present Commissioner during balance of year:

Repairs per contract	$4,568 03	
Extra allowance (see Table No. 1)	3,848 39	
Deposit returned on surrender of contract Aug. 15th	2,000 00	
Interest on said deposit	417 13	
Final payment for reconstructing lock 87 in 1863	6,098 52	
On account of reconstructing lock 99	5,253 00	
Part salary of Canal Commissioner	100 00	
		22,285 07

SUPERINTENDENT'S EXPENDITURES.

Lock tending on section 2, Aug. 15th to Sept. 30th	$92 00	
Material for repairs, do do	74 98	
Labor making repairs, do do	292 12	
Miscellaneous expenses for repairs, including incidental labor, teams, tools, etc	546 08	
Salary of superintendent	333 33	
		1,338 51

MISCELLANEOUS EXPENDITURES.

By late Commissioner during first quarter	$716 97	
		716 97

By present Commissioner during balance of year:

Comstock & Cassidy, publishing notices in 1863	$42 95	
M. D. Raymond, publishing notices	35 54	
Truair, Smith & Miles, printing blanks and circulars	10 00	
John Brandon, rod for inspector of boats	3 50	
C. A. Beach, inspector of repairs	39 83	
N. M. Gregg, do	51 25	
O. H. Bogardus, do	206 49	
		389 56
Total on section		$32,411 37

Repair Section No. 3.

This section extends from the first bridge north of lock No. 100 to the junction of the canal with the Chenango and Susquehanna rivers, in the village of Binghamton—distance 32 miles. The Stratton and Chenango forks feeders are located on this section, the Stratton being about fifty rods in length, with a dam three hundred and fifty feet in length, and having two bridges, one farm, the other towing-path. The Chenango forks feeder consists of a dam three hundred and fifty feet in length, with a guard lock, having a towing path bridge across it. The structures are: 1 stone lift lock, 14 composite lift locks, 1 guard lock, 2 dams, 7 waste weirs, 5 wooden trunk aqueducts, 3 iron bridges, 55 wooden bridges, 10 arch culverts, 1 bridge on feeder.

The payments during the first quarter by the late Commissioner were as follows:

For ordinary repairs under annual contract	$1,487 49	
For reconstructing aqueduct	397 06	
For reconstructing locks	10,031 87	
Constructing bridges on change of plan	1,398 25	
		$13,314 67

By the present Commissioner during balance of year:

Repairs per contract	$6,300 91	
Extra allowance (see Table No. 1)	4,637 50	
Reconstructing lock 104	5,627 00	
Reconstructing lock 109	3,315 00	
		19,880 41

Superintendent's Expenditures.

Removing slides and bottoming canal below lock 103, in 1863	$500 00	
Salary of superintendent	333 33	
		833 33

Miscellaneous Expenditures.

By late Commissioner during first quarter	$716 97	
		$716 97

By present Commissioner during balance of year:

Comstock & Cassidy, publishing notices in 1863	$42 97	
M. D. Raymond, publishing notices	35 54	
Truair, Smith & Miles, printing blanks and circulars	10 00	
C. A. Beach, inspector	39 84	
J. D. Hitchcock, inspector	28 00	
Albert Lobdell, inspector	88 00	
O. H. Bogardus, inspector	206 49	
		450 84
Total on section		$35,196 22

TABLE No. 2.

Recapitulation of expenditures during fiscal year, showing amount expended upon each canal by the late and present Commissioner, as exhibited in preceding statements in detail.

NAME OF CANAL.	No. of section.	Expended by the late Commissioner.	Expended by the present Commissioner.	Totals.
Erie canal	7	$2,920 51	$14,564 03	$17,484 54
Erie canal	8	57,668 00	24,538 09	82,206 09
Erie canal	9	16,243 90	18,808 91	35,052 81
		$76,832 41	$57,911 03	$134,743 44
Oswego canal	1	$10,668 61	$30,364 09	$41,032 70
Oswego canal	2	8,196 90	26,355 95	34,552 85
		$18,865 51	$56,720 04	$75,585 55
*Baldwinsville canal	All..	$191 80	$481 64	$673 44
†Oneida River improvement	All..	.....	$253 28	$253 28
Cayuga and Seneca	All..	$9,717 47	$28,443 96	$38,161 43
Crooked Lake	All..	$33,701 77	$15,742 62	$49,444 39
Chemung canal	All..	$18,221 86	$73,088 24	$91,310 10
Oneida Lake	All..	$776 33	$2,704 31	$3,480 64
Chenango canal	1	$3,844 06	$28,237 26	$32,081 32
Chenango canal	2	8,398 23	24,013 14	32,411 37
Chenango canal	3	14,031 64	21,164 58	35,196 22
		$26,273 93	$73,414 98	$99,686 91

Recapitulation of Table No. 2.

ERIE CANAL.

Expended by late Commissioner	$76,832 41	
Expended by present Commissioner	57,911 03	
		$134,743 44

OSWEGO CANAL.

Expended by late Commissioner	$18,865 51	
Expended by present Commissioner	56,720 04	
		75,585 55

BALDWINSVILLE CANAL.

Expended by late Commissioner	$191 80	
Expended by present Commissioner	481 64	
		673 44

ONEIDA RIVER IMPROVEMENT.

Expended by present Commissioner	$253 28	
		253 28

CAYUGA AND SENECA.

Expended by late Commissioner	$9,717 47	
Expended by present Commissioner	28,443 96	
		38,161 43

CROOKED LAKE CANAL.

Expended by late Commissioner	$33,701 77	
Expended by present Commissioner	15,742 62	
		49,444 39

* Properly chargeable to Sec. No. 1, Oswego canal.
† Properly chargeable to Sec. No. 2, Oswego canal.

CHEMUNG CANAL.		
Expended by late Commissioner	$18,221 86	
Expended by present Commissioner	73,088 24	
		$91,310 10
ONEIDA LAKE CANAL.		
Expended by late Commissioner	$776 33	
Expended by present Commissioner	2,704 31	
		3,480 64
CHENANGO CANAL.		
Expended by late Commissioner	$26,273 93	
Expended by present Commissioner	73,414 98	
		99,688 91
EXPENDITURES BY ENGINEER.		
Erie canal	$1,818 78	
Oswego canal	1,221 31	
Cayuga and Seneca	524 18	
Chemung canal	733 68	
Chenango canal	460 02	
Crooked lake canal	102 09	
		4,860 06
Total for fiscal year		$498,201 24
Total expended by late Commissioner during the first quarter, (October 1 to January 1)	$185,791 08	
Total expended by present Commissioner during balance of year, (to September 30)	312,410 16	
		$498,201 24

STATEMENT No. 3, *showing amounts paid on awards made by Canal Appraisers for land damages, on account of the enlargement of the canals, from January 1 to September 30th.**

DATE.	TO WHOM PAID.	Draft or certificate.	NAME OF CANAL.			
			Erie.	Oswego.	Cay. & Sen.	O. R. Imp't
Jan. 5..	William Beary	D	.....	.....	$800 00	.....
9..	Thompson E. Barnes	D	$644 68	.....	.....	.....
	S. H. & H. W. Fox	D	1,000 00	.....	.....	.....
Feb. 1..	Tobias Elting	D	.....	$25 00	.....	.....
23..	John Bennett	D	198 80	.....	.....	.....
	Julia A. Stanley	C	379 00	.....	.....	.....
24..	Daniel Evans	C	200 00	.....	.....	.....
Mar. 1..	Dunston Story	C	.....	.....	2,210 00	.....
	Rensselaer Schuyler	C	.....	.....	2,272 00	.....
5..	Wm. McClanathan	C	70 00	.....	.....	.....
12..	Dan'l Walrath, estate of	C	6,600 00	.....	.....	.....
April 1..	Dan'l Walrath, estate of	C	1,920 00	.....	.....	.....
	Downs & Gould, Owen, ass'ee	C	.....	.....	11,300 00	.....
5..	S. Orcelia Maxson	C	1,300 00	.....	.....	.....
	Sarah Ellis	C	50 00	.....	.....	.....
	Mary A. Cardner	C	350 00	.....	.....	.....
6..	James K. Newton	D	250 00	.....	.....	.....
	Benjamin Morse	D	670 00	.....	.....	.....
	Isaac LeGrange	D	350 00	.....	.....	.....
	W. & T. C. Howe	C	1,900 00	.....	.....	.....
18..	Reuben H. Bangs	C	700 00	.....	.....	.....
26..	William Tracy	C	.....	.....	300 00	.....
	Geo. H. Poppleton	D	905 56	.....	.....	.....
29..	Benson Owen, assignee of Downs and Gould	C	.....	.....	1,200 00	.....
	Benson Owen, assignee of Downs & Gould	C	.....	.....	1,200 00	.....
	Joseph L. Beebee	C	.....	.....	850 00	.....

* The late Commissioner included his payments on account of the first quarter (Oct. 1 to Dec. 31), in a "statement for fifteen months in aggregate amounts."

STATEMENT No. 3—Continued.

DATE.	TO WHOM PAID.	Draft or certificate.	NAMES OF CANAL.			
			Erie.	Oswego.	Cay. & Sen.	O. R. Imp't.
May 2..	C. J. Case	C	$1,400 00	.....	.....	.....
24..	B. B. Clapp	C	900 00	.....	.....	.....
28..	Geo. Williams, deceased	D	65 00	.....	.....	.....
June 2..	E. S. Johnson	C	100 00	.....	.....	.....
11..	John P. Cowing	C	.....	.....	$2,000 00	.....
18..	Silsby, Mynders & Bennett,	C	.....	.....	2,400 00	.....
	Southwell & Roberts	C	.....	.....	2,000 00	.....
	John Crane	C	.....	.....	100 00	.....
21..	Sarah Nichols, admin'x	D	700 00	.....	.....	.....
	J. D. Ledyard, as'nee Maxson	D	2,754 50	.....	.....	.....
July 1..	Levi Bennett	C	500 00	.....	.....	.....
9..	Jacob De Yoe	C	.....	.....	150 00	.....
	Hulbert & Slack	C	.....	.....	600 00	.....
	Sterling G. Hadley	C	.....	.....	200 00	.....
	Sidney Warner	C	.....	.....	350 00	.....
	Dox & Davis	C	.....	.....	500 00	.....
11..	J. W. Bryant	D	150 00	.....	.....	.....
16..	Robert Forrest, assigned to Jacob Stahlnecker, now deceased, by John Stahlnecker, administrator, E. H. Whitney, attorney	D	226 20	.....	.....	.....
19..	Joseph Metcalf	C	.....	.....	250 00	.....
	William Burtnell	D	.....	.....	125 00	.....
	S. F. Chaffe	D	3,000 00	.....	.....	.....
	do	D	250 00	.....	.....	.....
Aug. 5..	Ebenezer Merrett	C	.....	.....	.....	$567 20
	Robert Orman	C	.....	.....	.....	480 00
	Sylvester Coin	D	300 00	.....	.....	.....
	A. W. Van Riper, estate of,	D	300 00	.....	.....	.....
10..	John Purdie	C	.....	.....	700 00	.....
	Timothy Crapser	C	800 00	.....	.....	.....
18..	Chas. H. Morse	D	703 54	.....	.....	.....
	Joseph W. Sexton	C	500 00	.....	.....	.....
	Dyar Sexton, estate of	C	200 00	.....	.....	.....
19..	Abm. Auchmoody	D	.....	.....	.....	$125 00
	Orsemus Johnson	D	.....	.....	.....	503 29
	Daniel Plaisled	D	.....	.....	.....	642 56
	C. H. Van Gasbeck	D	.....	.....	.....	2,553 60
20..	John Shapley	D	300 00	.....	.....	.....
26..	Orris C. Orman	D	.....	.....	.....	454 40
	Jonas Clock	D	.....	.....	.....	437 60
	Darius Kinney	D	.....	.....	.....	106 88
	M. Whiting	C	.....	$85 00	.....	.....
	Adam Anthony	D	.....	.....	.....	1,080 32
27..	Joseph Siver	D	.....	.....	.....	1,296 02
	Clarrissa Johnson	D	.....	.....	.....	407 20
Sept. 1..	J. W. Smith, deceased	C	160 02	.....	.....	.....
6..	Alpheus Damon	D	.....	.....	.....	637 95
	Jonathan Deyo	D	.....	.....	.....	798 70
	John Auchmoody	D	.....	.....	.....	51 20
29..	W. H. Haven, Jr	D	113 92	.....	.....	.....
	Totals	....	$30,911 22	$110 00	$29,307 00	$10,141 92

Recapitulation.

Erie canal	$30,911 22	
Oswego canal	110 00	
Cayuga and Seneca canal	29,307 00	
Oneida River improvement	10,141 92	
		$70,470 14

STATEMENT No. 4,

owing payments to contractors on account of the enlargement of the canals.

ERIE CANAL.

erest under chap. 734, Laws of 1857, on account of sec. No. 139.	$193 41	
al payment for constructing section No. 204	23,229 29	
		$23,422 70

OSWEGO CANAL.

erest under chap. 734, Laws of 1857, on account of section No. 27	1,112 29

CAYUGA AND SENECA CANAL.

erest under chap. 734, Laws of 1857, on account of road and farm bridge butments on sections Nos. 1, 4, and 10	124 85
Total	$24,659 84

Final Recapitulation.

al drafts on Auditor	$426,578 40
al superintendents' expenditures	37,717 37
al miscellaneous expenditures	29,035 41
al engineers' expenditures	4,860 06
al drafts and certificates land damages	70,470 14
al on enlargement accounts	24,659 84
Grand total all expenditures	$593,321 22

WESTERN DIVISION.

The Commissioner in charge of the Western Division respectfully presents the following report, for the year ending September 30, 1864.

The Western Division of the canals consists of that part of the Erie canal from the east line of Wayne county to and including the canal and canal basins and slips in the city of Buffalo, together with the Genesee Valley canal.

This division of the canals for superintendence and repairs is divided into eight repair sections, five being upon the Erie and three upon the Genesee Valley canal. Those upon the Erie canal are sections Nos. 10, 11, 12, 13 and 14, and those on the Genesee Valley canal are Nos. 1, 2 and 3.

Sections 10 and 11 of the Erie canal were in charge of Zebulon Moore until the first of February last, since that date they have been in charge of E. B. Strong.

Sections 12, 13 and 14 were in charge of H. J. Van Dusen, until the date above mentioned, when Chester F. Shelly succeeded him.

Sections 1 and 2, Genesee Valley canal, were in charge of D. D. Spencer until the same date, when he was superseded by F. X. Beckwith.

Section 3 has been in charge of William Napier.

The engineer department is in charge of Orville W. Story, engineer, and W. W. Jerome, assistant engineer.

ERIE CANAL.

Repair Section No. 10.

This section is forty-two miles long, and is embraced within the limits of Wayne county. This section was under contract to be kept in repair by Chester B. Thomas, at the rate of eleven

thousand nine hundred and sixty dollars per year. The contract expires on the first day of January, 1867.

The addition made to this contract, by the Contracting Board, under chapter 252, Laws of 1864, is $27,806 85, being at the rate of $7,415.20 per annum.

The following are the mechanical structures on the section:

23 timber road bridges; 11 iron road bridges; 9 timber farm bridges; 3 waste weirs; 3 composite culverts; 19 stone culverts; 1 discharge culvert; 10 stone locks—of which 8 are single; 2 aqueducts; 4 lock houses; 9 watch houses; 1 workshop and shed.

No new structures have been added the past year.

The sewer commenced in the village of Clyde during the summer of 1863, has not been completed. There has been paid, to the 1st October, upon said work the sum of $3,697.35. The appropriation made by the Canal Board for this improvement is not sufficient to complete it, and will require an additional appropriation by the Legislature, as all the money set aside as an extraordinary repair fund has been exhausted or specifically pledged to other purposes. The amount assigned by the board was six thousand dollars. The addition necessary is estimated to be four thousand dollars. The waste weirs at lock Berlin and Lyons have been secured at a cost of $863.34.

The berme bank east of Lyons and the tow path bank west of lock Berlin have been raised and widened, they were in an unsafe condition, the improvement cost $4,734.33. The two works last mentioned were in progress at the date of my last report. The banks and slope wall immediately below Poor House and Lockville locks had fallen in and were obstructing navigation. The banks and walls have been replaced in a substantial manner at a cost to the State of $2,450.

Bridge approaches in Lyons, noted in last report, cost $1,392.48.

The bridges at Newark and Lockville have been raised to regulation height, at an expense of $966.35.

Vertical wall has been replaced and new wall built at Port Gibson and at Clyde, costing $1,108.45.

Under direction of chapter 111, Laws of 1864, the Canal Commissioners have commenced the construction of a sewer in Newark, the work will cost nearly ten thousand dollars, and an appropriation has been made of that sum by the Canal Board.

Some bottoming out was done upon this section during the suspension of navigation, which will be noted under the head of extraordinary repairs.

The following exhibits the payments made for repairs on this section.

To paid repair contractors their annual compensation	$13,610	52
To paid repair contractors for repairs not embraced in their contracts and certified to be correct by the Engineer of the Division viz: For taking down and replacing abutment Macedon bridge $770.65, for improvements on locks, valves, levers and protecting lock gates, &c., $1,643.04	2,413	69
To paid Michael O. Rourke, for gravel pit in Arcadia $200; Joseph K. Chipps, for same, in same town $50	250	00
To paid Robert Vreeland, for watching banks	12	00
To paid Jarvis Lord, for repairs of break near Port Gibson, break occurred in spring of 1861	1,135	87
To paid County Clerk, for recording deeds	2	60
To payments made by Superintendents, viz: For regulating and preventing crowds of boats $104; for painting timber shed at Palmyra $104; for protecting bank near Palmyra aqueduct $379.30; additional protection to lock 63, $37.01; Sundries $5; for one half of superintendent and clerk's salary, telegraphing, postage &c., $582.75. Total	1,212	06
Total payment on accounts of repairs	$18,036	74

Repair Section No. 11.

This section is thirty-eight miles long, and extends from the east line of Monroe county to the west line of construction section No. 284, in the village of Brockport.

This section is under contract to be kept in repair by Byron M. Hanks, to whom it was let for four and one-sixth years from the 1st day of November, 1862, at $11,900 per year. The addition made to this contract by the Contracting Board, is $26,775, being at the rate of $7,140 per year.

The following mechanical structures are upon this section:

6 lift locks; 1 guard lock; 1 weigh lock; 2 stop gates; 1 aqueduct; 6 waste weirs; 41 culverts; 2 wooden farm bridges; 13 wooden road bridges; 22 iron road bridges; 3 wooden tow-path bridges; 1 iron tow-path bridge; 4 lock houses; 1 work shop; 5 watch houses; 1 dam.

The improvements noted in the report for 1863, as extraordinary repairs, have been completed, viz., Smith street and towing-path bridges, at a cost of $2,321.68. A dam across Genesee river, for feeding the Erie canal when required, has been completed, and cost $4,209.24.

The tow-path bank, near the four mile grocery, west of Rochester, has been strengthened at a cost of $1,244.50.

There have been no other extraordinary repair work done on the section.

The following table exhibits the cost of maintaining the section:

To paid repair contractor his annual compensation		$13,754 46
To paid repair contractor for repairs not embraced in his contract as certified by the division engineer, viz: For bulkhead at head of Genesee river feeder, $394.40; for improvements on tow-path bridge over Genesee Valley canal, $131.33; for superstructure, Smith street bridge, $1,258.74; for improvements made in piers and bridges at locks 64 and 66, $764.19; for reconstructing three bridges with iron chords, instead of upon old plan, $3,363.95. Total		5,912 61
To paid for engineering services on repair work		24 00
To paid testing weigh lock		21 18
To paid on account Griffith street bridge		215 61
To payments made by superintendents: For regulating and preventing crowds of boats, $138; for one-half superintendent's salary, clerk hire, postages, advertising, &c., $582.73. Total		720 73
Total payments on account of ordinary repairs		$20,648 59

Section No. 12.

This section is thirty miles long, and extends from the west end of construction section No. 284 (in Brockport) to the west line of the county of Orleans. It is now under contract for repairs to Edward A. Mills, for four and three-fourth years, from April 1, 1862. The original contract price was $6,700. The Contracting Board added thereto $3,417 per annum, making the annual compensation $10,117 from the 1st of April, 1863.

The following are the mechanical structures upon the section:

7 waste weirs; 43 culverts; 20 wood road bridges; 11 iron road bridges; 3 wood farm bridges; 1 aqueduct; 1 bulkhead for Medina feeder; 1 dam for same feeder.

The culverts upon this section have nearly all been reconstructed and repaired. The few not yet secured will have attention the coming winter.

The excavation of the channel of Oak Orchard creek, directed by chapter 335, Laws of 1863, has not been completed. It is estimated that $8,000 dollars will be necessary to finish the work. There are no funds applicable to this purpose, and I respectfully advise that provision be made therefor.

The berme bank near the waste wier at Eagle harbor has been strengthened at a cost of $252.73. The securing was done by the superintendent, and has been charged to the extraordinary repair fund.

The break in the old canal at Holley has been completed.

A vertical wall has been built in the village of Hindsburgh at a cost of $1746.65, as an extraordinary repair. By direction of chapter 69, Laws of 1864, the Canal Commissioners advertised and let to the lowest bidder the construction of a sewer in the

village of Albion. The work is not completed at the date of this report.

Payments for repairs have been made as follows:

To paid repair contractor his annual compensation	$7,184 04
To paid repair contractor for repairs not embraced in his contract, as certified by Division engineer, as follows: improvement on stop gate at Holley, $305.25; for stoneing banks near Holley, $199.12	504 37
To paid repair contractor for repairing break at Holley in the old canal	9,492 72
To paid repair contractor for land damages and material used in above repairs	792 00
To paid repair contractor for repairs on repair scow, one-third of the amount charged this section	99 43
To paid repair contractor for repairing break in the canal at Knowlesville, in August, 1862	1,894 49
To paid repair contractor for bank watchers	156 00
To payments made by superintendent: for bank watchers, $428.50; for inspector of repairs at Holley break, $171.00; for assistant at Knowlesville break, $17.50; for one-third of superintendent and clerks salary and office expenses, $336.05	1,289 10
Amount chargeable to repairs on section	$21,412 15

Repair Section No. 13.

This repair section is twenty-six miles long, and extends from the west line of Niagara county to Pickard's bridge, over the Tonawanda creek.

The section was under contract to be kept in repair with Francis Hitchins until the 15th of March, 1866, for $9,800 per year, but under the operation of the law for the relief of contractors, he was permitted to surrender his contract on the 1st of August last. The section was advertised and let to N. S. Osborn for three years and three months, from the first day of October, at the rate of $14,400 per annum.

During the intervening months of August and September, the section was in charge of the superintendent.

The following are the structures upon the section:

21 culverts, 2 State races, 4 waste weirs, 10 combined stone lift locks, 1 stone guard lock, 15 wood road bridges, 13 iron road bridges, 2 wood farm bridges, 1 iron tow-path bridge, 4 wood tow-path bridges, 1 stop gate.

Under the direction of chapter 474, Laws of 1864, the Canal Commissioners assumed control of the remains of a structure known as Pickard's bridge which crosses Tonawanda creek on the west line of section 13. It became necessary to replace the superstructure and make repairs on the abutments. The work was advertised and let to the lowest bidder. The estimated cost is $6,800. An appropriation of that amount has been

made by the Canal Board from the fund assigned for extraordinary repairs on the western division.

The Canal Commissioners in conformity with the instructions contained in chapter 343, Laws of 1863, have let by contract to the lowest bidder, the construction of a bridge over Tonawanda creek, to be known as New Home bridge. The work is in progress, and is estimated to cost nearly $13,500, for which an appropriation has been made as in the Pickard bridge case.

Payments have been made for maintenance and repairs as follows:

To paid repair contractors their annual compensation	$6,247 44
To paid repair contractors for repairs not embraced in their contracts, viz: for securing tow path in Tonawanda creek, $1,841.40; for rebuilding tail race at Lockport, which had been exempted from contract, $3,555.87	5,397 27
To paid for watching dam in Lockport	47 50
To paid for land damages	80 00
To paid for repair boat for use of section	1,400 00
To paid for repairs on repair-scow, one-third charged to this section	99 43
To payments made by superintendents, for building, watching and taking out dam at Lockport, $270.30; for raising boat, $30; for inspector, $122; for one-third of superintendent and clerk's salary and office expenses, $336.05; total	758 35
Total	$14,029 99

The race around the locks at Lockport has been twice carried away. It was replaced last winter and remains uninjured. In addition to the payments noted, the Commissioner gave his draft to the late contractor for the amount of his deposit, made when entering into contract, with interest for $4,733.08.

The accounts of the superintendent for the months of August and September, while the section was in his charge, will not be made up for some days, and the cost of keeping the section in repair, and in putting the same in good condition, cannot, therefore, be stated now.

Repair Section No. 14.

This section is seventeen miles long, and extends from Pickard's bridge across the Tonawanda creek, to and including the slips and basins in the city of Buffalo.

The section was under contract to Archibald McArthur until January 1st, 1867, at an annual payment of $14.400. The contractor surrendered the section on the 1st of August, and it was advertised and let to Andrew Spalding—he being the lowest bidder—for three years and three months, at the rate of $24,970 per year.

The following structures are upon this section:

47 road bridges, 55 farm bridges, 3 culverts, 2 locks, 1 ship lock, 2 foot bridges, 1 stone pier at Black Rock harbor, 1 protection pier, or break-water, for the basin, and 1 jetty pier in Erie basin.

The Clark and Skinner canal improvement has been put under contract. The limited sum of money under the control of the Canal Board would not permit the work to be finished as contemplated, so that instead of docking both sides of the slip, and excavating it to full width of fifty-eight feet, the Commissioners have been obliged to provide for a channel but forty feetin width and with docking on but one side.

An appropriation of $16,500 has been made by the Canal Board, and to complete this very desirable and important work the sum of $12,000 will be required, as estimated by the Engineer. The Canal Board also made an appropriation for the improvement of the channel of Erie basin to the amount of $1,500. At least $8,000 should be expended on that improvement the coming year. The small amount of money furnished is being expended.

The docking in slip No. 3, and a portion of Erie basin, which was under contract, as noted in the report of 1863, has been completed at an expense of $3,185.44.

The deepening of that portion of the Erie canal, between Erie and Commercial-streets, in the city of Buffalo, to canal bottom, as originally designed, has been finished at an expense of $2,290 .50. By this improvement, navigation is secured at all times, and will not be disturbed by low water, as heretofore.

The docking not having been properly put in where this work was done, slid into the canal, and was replaced at an expense of $1,407.60.

The improvement noted in last report in the Main and Hamburgh-street canal, cost $1,892.24. The construction of an iron bridge over the Main and Hamburgh-street canal, on Michigan-street, in place of a wooden structure, cost the State $4,314.85.

An iron bridge has been substituted for a wood bridge over the Ohio basin slip, on Elk-street; the approaches have not been completed.

The bridge on the military road, over the Erie canal, in the village of Tonawanda, became dangerous, and was replaced by an iron one. The accounts have not yet been closed.

The bridges above noted are upon important avenues, which

are much traveled, and the old superstructures being worn out, it was deemed sound economy to replace them by more durable material. The contractors were charged, in addition to the amounts paid and to be paid by the State, with the amounts it would have cost them to replace them upon the old plan. The amount thus paid by the contractors is $3,930.05.

All the works above described are classed as extraordinary repairs.

This section has been in charge of the superintendent during the months of August and September. His accounts have not been audited at this date.

Payments for repairs have been as follows:

To paid repair contractor his annual compensation	$14,280 00
To paid same for repairs not embraced in his contract as certified by the engineer. For improvements on bridge over slip at Tonawanda, and on tow path bridge, $456.31. For improvements on Scajaquaday creek ditch and dam, $982.78. For rack at feeder, and work on guard lock at Black Rock, $3,574.27. For improvements on face of towing path, Tonawanda creek, $91.86. Sundries $105.45. Total	5,210 67
To paid for towing boats and use of tugs during breaks in dam at Tonawanda, and break between Tonawanda and Buffalo	325 00
To paid for repairs on repair scow—one-third charged to this section	99 43
To paid F. I. Behn, as assistant engineer on repairs	614 50
To paid on account reconstruction Louisiana-street bridge	1,020 00
To paid for temporary occupation of land	50 00
To paid by superintendents; for salaries boat inspectors, $1,744; for railings and protection to bridges, $101.25; for one-third salary of superintendent's clerk and office expenses, $336.06. Total	2,181 31
Total	$23,780 91

In addition to the above payments, a draft was given to the late repair contractor for $4,299.19, in full, for deposit and interest, made with the Canal Department, as security for performance of his contract.

Detentions and their Causes on the Erie Canal, During the Year, Ending 30th September.

1. October 12, 1863—Break at Knowlesville over culvert; repaired by repair contractor—detention to loaded boats about four days.

2. April 30, 1864—Boats navigated *via* Niagara river to Tonawanda four days. This embarrassment was occasioned by the blowing up of the repair contractor's dredge, in the winter, and the only dredge which could pass the locks broke down frequently during the progress of removing the dams placed in the canal by construction contractors.

3. May 14—Owing to an unusually heavy freshet in Tonawanda creek, the waste weir at Two Mile creek west of Tona-

wanda, was carried out. In several places the banks were washed out to some extent, where the canal banks had not been completed and raised to the intended height. The repairs were made by the contractor. Detention about five days.

4. June 21—.Three lock gates at Macedon lower lock, were destroyed by a boat laden with wheat, which sunk in the lock. Detention four days.

5. June 28 —A boat laden with grain sunk a short distance east of the weigh lock at Rochester, in such a manner as to entirely obstruct navigation. Detention one and a half days.

6. August 20.—A portion of the Tonawanda dam gave out, and was repaired by the superintendent. Detention to loaded boats three days.

The above schedule presents a formidable list of casualties which the Commissioner deeply regrets, yet he cannot see how any of them could have been prevented. The first noted occurred in a culvert which had been carefully examined and repaired the preceding winter. It was again examined, and all possible protection made last winter that could be devised. The second detention is explained above. Ample time had been given to get the dams removed before the opening of navigation, but the failure of the only instrument which could be procured, could not be guarded against. The third casualty was in an uncompleted canal, and no fears had been entertained regarding the safety of the waste weir. The fourth and fifth happen yearly and cannot be prevented. The sixth occurred in a part of the filling of the dam giving out, not in the structure itself. Thorough repairs and reconstruction will be made the coming winter.

Accidents will frequently happen, notwithstanding the utmost energy and vigilance is used to prevent them.

GENESEE VALLEY CANAL.

This canal extends from the Erie canal, in the city of Rochester, to the Allegany river, at Milgrove, 113 miles. The Dansville side cut commences at the Shaker aqueduct, near Mount Morris, and extends to Dansville, a distance of 11 miles.

Repair Section No. 1.

The section is 52 miles long, and extends from the junction of the Genesee Valley canal with the Erie canal at Rochester to the terminus of the Dansville side-cut at Dansville. It was under

contract to be kept in repair by William McArthur, for five years from the 1st day of February, 1862, for the annual compensation of $8,472.

The Contracting Board accepted the surrender of this contract and relet the same to the lowest bidder, Wm. W. Reed, for three years and three months, at the rate of nineteen thousand four hundred dollars per year.

The mechanical structures upon this section are as follows:

19 lift locks; 3 guard locks; 4 dams; 3 bulkheads; 8 aqueducts; 57 culverts; 15 waste weirs; 45 road bridges; 62 farm bridges; 3 tow-path bridges; 11 lock houses.

An iron bridge has been substituted in place of wood on Plymouth avenue, in Rochester, at a cost of $3,294.32. Also, one in the village of Mount Morris, costing $3,050, both paid for as extraordinory repairs.

Payments for repairs for the fiscal year, upon the section have been as follows:

To paid repair contractor his annual compensation	$8,235 51
To paid same on account of repairing breach of 1863	9,175 63
To paid same for improvements on Adams street bridge, Rochester, certified by Engineer	310 99
To paid same for raising, widening and securing banks	3,135 00
To paid contractor balance for constructing Atkinson street bridge Rochester	1,215 76
To payments made by superintendent. For removing deposits from canal $271.79 (charged to repair contractor). To paid for engineering on repairs of breaks $568. To one-half of superintendents clerks salaries and office expenses $406.32	1,246 11
Total	$23,319 00

The repair contractor has been paid by draft $4,547.58, being for deposit, with interest, made to secure the performance of his contract.

The accounts of the superintendent who had charge of the section during August and September, not having been audited, will pass into the new fiscal year, commencing this date.

Repair Section No. 2.

This repair section is thirty-six miles long, and extends from the junction of the canal with the Dansville side-cut, at the Shaker's settlement, to and including the Genesee River feeder at Oramel.

The mechanical structures upon this section are the following:

61 lift locks, 1 guard lock, 1 dam and bulkhead, 7 aqueducts, 30 culverts, 9 waste weirs, 35 road bridges, 28 farm bridges, 4 tow-path bridges.

The section was under contract to be kept in repair by George D. Lord, assignee of John Lambert, for five years from the 15th of March, 1861, for the annual compensation of $12,540. The surrender of the contract was accepted by the Contracting Board, to take effect on the 15th of August, and has not since been relet. The upper portion of this section having been so very seriously damaged that it could not be placed in repair to be again let, up to this date.

The embankment at York landing was considered dangerous and has been secured by partially changing the line of the canal. The expense is estimated at $1,750; the accounts are not closed.

Payments for repairs have been as follows:

To paid repair contractor his annual compensation	$12,435 50
To paid same for repairing breaks of 1863	4,650 00
To paid same for widening, raising and securing banks	15,870 00
To paid same for repairs and protection to locks and banks, certified by Engineer $739.65; for change and improvements in Portageville bridge and abutments $2,126.19	2,865 34
To paid same on account of an award of $24,600, made by the Canal Board on the 26th of July, 1864; under the provisions of chapter 215, Laws of 1864	12,000 00
To paid for lock house	390 00
To paid for advertising repairs 1859	27 60
To payments made by superintendents; for engineering services on repairs of breaks $409.50; for one half of superintendents and clerk's salaries, and office expenses $406.32	815 82
Total	$49,054 26

The repair contractor has been paid by draft for deposit and interest, (deposited to secure performance of contract) $3,560.44.

Repair Section No. 3.

The section is thirty-eight miles long, and extends from the south bank of the Genesee river, at Oramel, below and including lock No. 72, to the Allegany river, at Millgrove pond.

The following mechanical structures are upon the section:

34 locks; 1 guard-lock; 4 aqueducts; 15 waste weirs; 23 culverts; 37 road bridges; 14 farm bridges; 1 tow-path bridge; 2 road and change bridges; 1 foot bridge; 5 lock houses; 1 overfall, at Rockville reservoir; 2 feeder dams.

The section is under contract to be kept in repair by Messrs. Luckey & Martin, assignees of Wm. McArthur, for five years from the 1st day of August, 1860, for $7,433 per annum.

The dam across the Ischua feeder has been completed, at a cost of $5,757.07.

The improvement made upon Oil Creek reservoir to increase its capacity has in its most material parts been completed, but

the accounts have not as yet been closed; the expenditure has been thus far $4,137.07.

There have been expended in stopping leaks on the Ischua feeder $475.67.

The above works have been considered as extraordinary repairs.

Payments for repairs for the fiscal year have been as follows:

To paid repair contractor his annual compensation	$7,959 67
To paid same for repairs not embraced in his contract as certified by the Engineer viz: For reconstruction of Haskell creek waste weir $3,768.13; for work on Hinsdale bridge $61.79. Total	3,829 92
To paid same for repairs Ischua feeder, by superintendent	622 92
To payments made by superintendent for engineering $54; for lining Ischua feeder $475.67; for salary and incidental expenses $676.64	1,206 31
To amount of award made in favor of repair contractors by Canal Board, November 19, 1864, under chapter 234, Laws of 1863, for repairs of break of 1861	8,442 43
Total	$22,061 25

INTERRUPTIONS TO NAVIGATION GENESEE VALLEY CANAL.

October 2d, 1863.—Break at lock No. 11; detention two days.

November 2, 1863.—Break at Caneadea; detention one day.

May 3, 1864.—Section one was not navigable from Dansville to Scottsville until 3d of May.

June 9.—Two lock gates broken at lock No. 41, section 2; detention three days.

June 15.—Break near head of Connewangus lock, section 1; detention four days.

July 8.—Necessary repairs to North Trunk, near Portage; suspended navigation one day.

July 21.—Repairs to lock No. 31; detention three days.

August 17.—A great rain storm carried away the Caneadea aqueduct and portions of the banks in many places on section 2, but slight damage was done to section 3. and but little on section 1, except the Dansville side cut, which was very seriously damaged. The repairs are in progress and navigation will probably be resumed within ten days.

Heavy expenditures have been made with a view to protect this canal from the destruction it had been subjected in 1861 and in 1863. The large amount expended proved very serviceable, as the portions of the canal which were injured most seriously in the floods of '61 and '63, were but little damaged, the greater loss being in a portion of the canal but little affected in the former breaks.

Expenses, General Management.

Commissioners' salary and travel	$2,400 00
Clerk hire, office rent and contingent expenses of office in Buffalo	1,647 50
	$4,047 50

Engineering.

On account repairs Erie canal	$6,600 00
do do Genesee Valley canal	1,223 61
do of enlarging one tier locks	3,078 39
do of enlargement Erie canal, making final maps, &c	1,375 11
	$9,277 11

Enlargement Erie Canal.

Certificates issued in payment final accounts	$3,105 21
Certificate issued to Brazell & McCann, construction contractors, payment of an award made by Canal Board under chapter 394, Laws 1863	4,370 00
Drafts for engineering	1,375 11
Draft in payment of award made by Canal Board, Nov. 19, 1863, to H. C. Swift, under chapter 384, Laws 1863	2,769 38

Drafts in Payment of Land Damages.

Awards made by Appraisers and Canal Board	$10,966 29
Certificates in payment of same	41,650 10
Cash payments have been made to Wm. H. Douglass, raising bridge	112 71
To sundry persons for temporary occupation	
	$52,729 10

Testing Improved Lock Gates.

Under the direction of the Canal Board, lock gates of peculiar construction have been put in one of the Macedon locks, and a large proportion of the expense has been paid by the State. The experiment has not been fully tested, the delay in doing so is chargeable to the manager of the "improved gate," as every possible facility has been given by the Commissioner.

Payments on this account have been as follows:

Paid by Commissioner in 1863	$272 75
do do during present fiscal year	1,714 91
do do to Superintendent	341 37
	$2,329 03

Old Claims.

There have been paid claims and accounts of this character as follows:

Handey & Church,	for construction	Oil Creek reservoir	$115 38
Gardner Sheldon,	do	Genesee Valley canal	155 63
Hayden & Bigelow,	do	do	102 00
James O. Jordon,	do	do	102 37
John B. Stone,	do	do	75 00
Hester Seely,	do	do	100 00
Bull & Bristol,	do	do	40 05
Wolcott Hatch,	do	do	13 50
Total			$703 93

Extraordinary Repairs.

The Legislature during the sessions of 1863 and 1864, made appropriations for such works as the Canal Board should consider to be extraordinary repairs, to the amount of $828,309.68. Of this amount $341,103.22 were assigned to the Western Division of the canals.

The appropiations by the Canal Board have been as follows:

For repairing culverts, sections 12 and 13	$18,000 00
For dam across Ischua creek, section 3, Genesee Valley canal	5,500 00
For raising banks of Oil creek reservoir, section 3	3,200 00
The two last named works were authorized by chapter 342, Laws of 1863.	
For deepening prism of Erie canal, section 14	2,000 00
For iron bridge over Main and Hamburgh street canal, on Michigan street, in Buffalo	3,641 60
For improvement portion Erie basin and slip No. 3, Buffalo	3,000 00
For deepening portion Main and Hamburgh street canal	1,800 00
For widening, raising and securing banks of the Erie and Genesee Valley canals	25,000 00
For dam across Genesee river, near Rochester	7,500 00
For the construction of a sewer in the village of Clyde, directed by chapter 341, Laws of 1863	6,000 00
For improving Smith street and tow-path bridge over the Genesee Valley canal—both in Rochester	2,360 00
For securing waste weirs at Lock Berlin and Lyons	950 00
For iron bridge at Tonawanda, section 14	2,700 00
For securing approaches to bridges in Lyons	1,900 00
For iron bridge over Genesee Valley canal, on Plymouth avenue, Rochester, authorized by chapter 482, Laws of 1863	2,900 00
For completing construction sections Nos. 361, 362, 363, 364, 365 and 366, between Tonawanda and Buffalo	97,000 00
For bottoming out prism of Erie canal at various places between Clyde and Rochester	39,000,00
For improvement Oak Orchard creek, directed by chapter 335, Laws of 1863	16,306 00
For iron bridge on Elk street, Buffalo	3,700 00
For repairs Erie canal, between Commercial and Erie streets, Buffalo.	1,271 00
For dam across Ischua creek, (additional)	200 00
For Oil creek reservoir	1,900 00
For stopping leaks in Ischua feeder	1,300 00
For improvement canal at foot of Lockville, and Poor house locks	2,450 00
For vertical wall at Port Gibson	880 00
For payment of award made to Lewis Seely by Canal Board	11,000 00
For payment made to C. F. Shelly	32 65
For sections Nos. 361, 2, 3, 4, 5 and 6, (additional)	2,694 00
For improvement Genesee Valley canal at York landing	1,743 75
For iron bridge on Michigan street, Buffalo, (additional)	473 05
For repairing culverts, sections 12 and 13, (additional)	5,100 00
For payment of an award made by Canal Board, November 19, under chapter 384, Laws of 1863	2,769 38
For deepening prism of Erie canal, (additional)	300 00
For portion of Main and Hamburgh street canal, (additional)	125 00
For constructing tow-path bridge over Scajaquadys creek	3,000 00
For new lock gate experiment	350 00
For construction of New Home bridge, directed by chapter 343, of the Laws of 1863	13,500 00
For raising bridges at Newark and Lockville	1,100 00
For construction of sewer at Newark, directed by chapter 111, Laws of 1861	10,000 00
For construction of sewer at Albion, directed by chapter 69, Laws of 1864	1,500 00
For improvement of Clark and Skinner canal in Buffalo	16,500 00
For iron bridge in village of Mount Morris, (additional)	950 00
For replacing docking Erie canal, between Commercial and Erie streets, Buffalo	1,407 60
For vertical wall in village of Clyde	349 38
For payment of claim for the construction of tile drain in town of Sweden	392 00

For vertical wall in village of Hindsburgh	$1,746 65
For Pickard's bridge, directed by chapter 474, Laws of 1864	7,300 00
For sluice in village of Holly	250 00
For making maps for appraisals of lands taken for improvement of Ischua feeder and Oil creek reservoir	800 00
Total	$333,842 06

Payments on Account of Extraordinary Repairs.

To total payment on account			culverts for 1863 and 1864	$17,869 29
do	do	do	Ischua dam for 1863 and 1864	5,757 07
do	do	do	Oil creek reservoir for 1863 and 1864	4,137 07
do	do	do	dredging Erie Canal for 1864	2,290 50
do	do	do	Michigan street bridge for 1864	4,314 85
do	do	do	Slip No. 3, for 1863 and 1864	3,185 44
do	do	do	Main & Hamburgh st. canal for 1863, & '64	1,893 24
do	do	do	raising and securing banks for 1863 & '64	7,073 36
do	do	do	dam across Genesee river, 1863 and 1864	4,209 24
do	do	do	sewer in Clyde for 1863 and 1864	3,697 35
do	do	do	Smith st. and towing path bridges, Rochester, for 1863 and 1864	2,291 68
do	do	do	securing waste weirs Lock Berlin and Lyons for 1863 and 1864	867 34
do	do	do	bridge Tonawanda for 1863 and 1864	2,527 25
do	do	do	approaches to bridges Lyons for '63 & '64	1,392 48
do	do	do	Plymouth avenue bridge, Rochester, for 1863 and 1864	3,294 32
do	do	do	completing sections 361, 362, 363, 364, 365 and 366 for 1863 and 1864	42,613 17
do	do	do	bottoming out between Clyde and Rochester, for 1863 and 1864	48,349 52
do	do	do	Oak Orchard creek and feeder for 1863 and 1864	7,322 50
do	do	do	bridge Elk st. Buffalo, for 1863 and 1864	4,255 35
do	do	do	repairs Erie canal between Commercial and Erie st. Buffalo, for 1863 and 1864	2,678 60
do	do	do	stopping leaks Ischua feeder for 1863 and 1864	475 67
do	do	do	improvement Erie canal, Lockville, and Poor house locks for 1864	2,450 00
do	do	do	vertical wall, Port Gibson for 1864	750 07
do	do	do	award to Lewis Seely for 1864	11,000 00
do	do	do	improvement at York Landing for 1864.	1,197 00
do	do	do	to C. F. Shelly for 1864	32 65
do	do	do	of award to H. C. Swift for 1864	2,769 38
do	do	do	new lock gates for 1864	341 37
do	do	do	New Home bridge for 1864	106 13
do	do	do	raising bridges, Newark, for 1864	966 35
do	do	do	Pickard's bridge for 1864	90 13
do	do	do	sewer in Newark for 1864	747 15
do	eo	do	sewer in Albion for 1864	28 16
do	do	do	Clark and Skinner canal for 1864	80 14
do	do	do	vertical wall in Clyde for 1864	349 38
do	do	do	do do Hindsburgh for 1864	1,746 65
do	do	do	drain in Sweden for 1864	392 00
Total payments				$193,541 85
Of which amount there was paid prior to 1st October, 1863				23,572 81
Leaving as amount expended fiscal year 1864				$169,969 04

Summary of Payments.

Payments for ordinary repairs, sec.			10	$18,036 74
do	do	do	11	20,648 59
do	do	do	12	21,412 15
do	do	do	13	14,029 99
do	do	do	14	23,780 91
do	engineering			3,600 00
Total payments for repairs of Erie Canal				$101,508 38

Payments for ordinary repairs and repairing breaks, sec. 1, Genesee Valley Canal	$23,319 00	
Payments for ordinary repairs and repairing breaks, sec. 2, Genesee Valley Canal	49,054 26	
Payments for ordinary repairs and repairing breaks, sec. 3, Genesee Valley Canal	22,061 25	
Payments for engineering	1,223 61	
Total payment for repairs Genesee Valley Canal		95,658 12
Payment for general management		4,047 50
Total payment on account repairs and management Erie and Genesee Valley Canal		$201,214 00
Payments on account "enlargement Erie Canal"		52,729 00
do do "survey one tier of locks"		3,078 39
do do "new lock gates"		2,056 28
do do "old claims"		703 93
do do "extraordinary repairs"		169,969 04
do do "deposits made by repair contractors"		17,140 29
Total payments on all accounts for fiscal year ending Sept. 30, 1864		$446,890 93

Navigation—Repairs.

Navigation upon the Western division has not been as exempt from interruptions by accidents as in the two former years. While none of the numerous casualties has been of an expensive character to remedy, or occasioning much detention, still they have been very embarrassing and annoying to boatmen and shippers. The undersigned hopes, by reason of care and early precautions, to escape transmitting so large a list to the Legislature next year.

Boats have been permitted from the 1st of June to draw six feet of water. This could not have been permitted had not the canal in various places been bottomed out the preceding winter. Contracts are in existence to complete much of such work, but the funds provided have been exhausted. There is now needed to finish those contracts $55,800. I earnestly urge upon the Legislature the propriety of making an immediate appropriation for this purpose, that the contractors may again commence work.

The various sections of the canal are in usual good condition, and, with the exception of the accidents before noted, navigation was never better.

To provide water sufficient for the Genesee Valley canal, the Commissioners were authorized to appropriate such lands and streams as they might deem necessary for the purposes of a reservoir. The act, chapter 170, Laws of 1864, also authorized the building of five locks of stone instead of wood.

The locks were let, but the contractors were not able to get materials on the ground to commence rebuilding. The old locks

are in bad condition, and have been repaired to carry them through another year, when they can be replaced by stone.

The surveys of Lime Lake—authorized by the Canal Commissioners—were lost, which occasioned great delay. The Commissioner yet hopes to be able to use the reservoir next season.

A large extraordinary repair fund is needed, or extraordinary repairs must be made from the repair fund.

The Legislature appropriated, by chapter 400, Laws of 1864, one hundred and eighty-one thousand four hundred and eighty-three dollars for repairs on the Western division, and prohibited the Commissioner from expending more than the amount thus provided.

On account of awards made by the Contracting Board to repair contractors, the sum thus fixed has been largely encroached upon, and it will be impossible to keep up repairs and navigation without an additional appropriation is made.

The Contracting Board awarded to the contractors a percentage on their contracts, commencing on the 1st of April, 1863, and extending to the expiration of their contracts. On the 1st of August last the additional percentage was paid by monthly drafts given as usual, but the whole amount from the 1st of April to the 1st of July was paid in gross sum on the 1st of October, 1864, and amounted to the large sum of $66,820.63.

The increased amount to be paid to repair contractors over and above the amount paid a year ago is $47,786.70, making in all an amount chargeable upon the fiscal year 1865 of $114,607.33. The entire amount thus to be paid was not anticipated and not considered when the aforesaid appropriation of $181,483 was made.

The undersigned can see no reason why his calculations of the amount needed for repair of his division should differ from those made in the winter of 1864, and, therefore, it is, in his judgment, necessary that an additional appropriation shall be made for the Western division of at least the amount donated to repair contractors, viz: $114,607.33.

The Commissioner presented his views in relation to the repair contract system in his last report. He then denounced the system as absurd, unwise and expensive, and one which, in his judgment, should be abolished.

The only argument which seemed to have influence with the

Legislature, in favor of its continuance, was that it was cheaper than the old management.

Under the operation of the law for relief of contractors, and the large amount of awards, made under relief acts by the Canal Board (the latter on this division for the fiscal year being $52,308.86), to repair contractors the past year, the argument has been more than answered.

The undersigned, from the experience of the past year, has been confirmed in his opinions, and unhesitatingly advises your Honorable body as a measure of economy and expediency, and for the best interests of the canals and those interested in its business, to abolish the system.

The report of the Engineer is attached with this report, and will fully explain to what extent money is required for the completion and protection of the canals.

The Commissioner, in view of the cost of doing work, asks for as few appropriations as he deems consistent for the interests of the State.

An appropriation is asked to finish bottoming out on contracts now in existence, of	$55,800 00
To complete Oak Orchard creek improvement, under contract	8,000 00
To complete sewer in Clyde, under contract	4,000 00
To complete Clark & Skinner canal, under contract	12,000 00
To dredge channel of Erie basin	8,000 00
To excavate Main and Hamburgh Street canal	8,000 00
To replace trunk aqueducts at Portage	25,000 00
To protect banks Genesee Valley canal	15,000 00
Total	$135,800 00

Enlargement of Locks.

The Commissioner believing a highway through the State adequate to the conveyance of property, that may demand transit, at fair and reasonable charges, to be of the utmost importance to the commercial and business interests of the people of this State, again presumes to call the attention of the Legislature to this subject.

The present canal capacities are insufficient for the amount of property created west of Buffalo, which seeks tide water.

No argument is necessary to demonstrate this fact; the reports of Commissioners and State engineers inform you that detentions are frequent where single locks exist, and have been so since 1860; and they have repeatedly urg d the Legislature to take action, looking to additional facilities for the business pressing upon the canals.

It has been asked that additional locks be constructed where

there are now but single ones. A bill passed the House of Assembly to that effect, in the session of 1863, but failed in the Senate, on the ground that when locks should be built they should be of enlarged size, and the Senate directed a survey to be made, showing the plans with maps, and estimated cost of constructing a new tier of locks on enlarged plan.

The State Engineer caused the surveys to be made and presented his report to the Legislature. Nothing is wanted to commence the work but action on the part of the Legislature.

The Assembly made the following inquiry in their session of 1864:

Resolved, That the Canal Board be and they are hereby required to take into consideration the propriety and necessity of enlarging the locks upon the Erie and Oswego, Cayuga and Seneca canals. If said Board is satisfied that such enlargement is necessary and proper to be made, they are to report a plan, such as in their judgment will best promote the interests of the State, with a view to economy and prompt execution of the project.

They are also required to report what improvements are to be made in the walls and prism of the canals, with a view to afford a speedy transit to boats of increased length, drawing six feet of water, together with an estimate of the entire cost of all the proposed improvements, the length of time probably requisite to execute the same, with such other suggestions and recommendations as they may deem important to communicate, and answer as speedily as may be practicable.

The Canal Board presented an answer (a portion of which is found below), which they afterwards recalled:

In answer thereto they respectfully beg leave to represent,

That the Erie canal has, during the last two years nearly reached its maximum capacity for the transportation of property seeking tide water.

That, by reason of the large number of boats necessarily employed to move the tonnage, frequent crowds have been occasioned at the locks and at other places, creating embarrassing and vexatious delays, increasing the time of passage, and materially increasing the cost of transportation.

That the large amount of business now transacted upon the canals, demands and should have additional facilities, and in our opinion the retention of the present trade requires some radical improvements.

That, the trunk line of the canal is capable of sustaining the pressure of a large and steady accumulation of trade for many years, and, that to fully appreciate and realize the value of the enlarged canals, it is necessary that the locks should have comparative capacity with them.

That by thus increasing the capacity of the locks to pass a greater amount of property, the delays complained of would be avoided, the time of passage reduced, and the carrying of large cargoes instead of small ones, would sensibly reduce the cost of transportation.

That such a reduction would retain our present trade, and secure a large proportion of the increased productions of the Western States, which would naturally seek the channel of communication with the seaboard.

That the present unavoidable high rates of transportation tend to divert trade into other channels, and has a strong tendency to encourage the opening of new and rival routes.

That in our opinion a much greater necessity now exists for the initiation of improvements in our canals than in 1835, when the project of "enlargement" was determined upon.

In the year 1837, the tolls received from the productions of our State, and for merchandize passing west, were $1.032,507, from products from western States, $160,116. In the year 1862, the tolls received from products of the State and for merchandize were $1,465,735, while the receipts from products of western States were $3,722,208. The enlargement was for the "purpose of providing a cheap method of intercommunication, and securing the growing trade of the west," the propriety of which has been fully demonstrated, and the notable difference in commercial relations between the years 1837 and 1862, seem equally to demonstrate the propriety and necessity of corresponding preparations to provide for similar results.

The following table is presented showing the tolls and tonnage from production of our State, and from the western States for a series of years. The table is from the Auditor's report on tolls and tonnage for the year 1862, the report for 1863 not having yet been published.

TRADE OF THIS STATE AND OF THE WESTERN STATES.

The following table shows for each of the preceding twenty-six years, how much of the tolls received in each year of navigation was on "products from western States," how much was on "products of this State," and how much was on "merchandise going from tide water:"

Year.	Tolls on agricultural and other products		Merchandise from tide water.	Total on all canals.
	From other States.	From this State.		
1837	$160,116	$723,756	$408,751	$1,292,623
1838	247,241	803,967	539,703	1,590,911
1839	310,072	756,723	549,587	1,616,382
1840	427,480	865,758	482,510	1,775,748
1841	500,630	924,326	609,927	2,034,883
1842	467,792	827,841	453,565	1,749,198
1843	623,297	892,151	566,142	2,081,590
1844	676,032	1,088,274	682,068	2,446,374
1845	677,922	1,240,678	727,582	2,646,182
1846	1,013,478	1,100,699	641,929	2,756,106
1847	1,583,500	1,213,761	837,943	3,635,204
1848	1,157,905	1,213,060	881,402	3,252,367
1849	1,101,860	1,261,229	905,137	3,268,226
1850	1,137,731	1,222,877	913,291	3,273,899
1851	1,251,390	1,027,124	1,051,213	3,329,727
1852	1,304,018	1,013,990	799,650	3,118,244
1853	1,383,422	945,968	875,328	3,204,718
1854	985,647	1,007,847	780,072	2,773,566
1855	1,148,098	857,359	799,620	2,805,077
1856	1,247,765	743,668	756,770	2,748,203
1857	899,380	674,057	472,204	2,045,641
1858	944,109	888,259	278,386	2,110,754
1859	813 154	682,405	228,386	1,723,945
1860	1,650,978	991,216	367,353	3,009,597
1861	2,682,969	957,697	268,119	3,908,785
1862	3,722,208	1,093,533	372,202	5,188,943

The statement below gives the total tonnage arriving at tide water by way of the Erie canal for a series of twenty-six years, distinguishing between the tonnage from this State and the tonnage from western States:

Year.	From Western States, tons.	From this State, tons.	Total tons.
1837	56,255	331,251	387,506
1838	83,233	336,016	419,249
1839	121,671	264,596	386,267
1840	158,148	309,167	467,315
1841	224,176	308,344	532,520
1842	221,477	258,672	480,149
1843	256,376	378,969	635,345
1844	308,025	491,791	799,816
1845	304,551	655,039	959,590
1846	506,830	600,662	1,107,270
1847	812,840	618,412	1,431,252
1848	650,154	534,108	1,184,287
1849	768,659	498,068	1,266,724
1850	773,858	598,201	1,371,859
1851	966,993	541,684	1,508,677
1852	1,151,978	492,721	1,644,699
1853	1,213,690	637,748	1,851,438
1854	1,100,526	602,167	1,702,693
1855	1,092,876	327,839	1,420,715
1856	1,212,550	374,580	1,587,130
1857	919,998	197,201	1,117,199
1858	1,273,099	223,588	1,496,687
1859	1,036,634	414,699	1,451,333
1860	1,896,975	379,086	2,276,061
1861	2,158,425	291,184	2,449,609
1862	2,594,837	322,257	2,917,094

In addition to the remarkable increase of tonnage thus exhibited, a corresponding increase is found in the tonnage of competing lines of railways, none of which were in existence when the enlargement of the canals was commenced. The Board cannot, without much delay, procure full and official statements of the amount of property carried over the Pennsylvania canals, the Baltimore and Ohio, the Pennsylvania Central, the Great Western, Grand Trunk, and Collingwood railways, the Welland canal, and by the Ogdensburgh route; but the increase of traffic upon the New York Central and the New York and Erie roads, indicates the comparative increase on the various lines of communication. The tonnage exhibited in the table below, relating to the New York roads, is from the Auditor's report, and the succeeding statement is from a carefully collated trade report, which has much merit, and is worthy of careful attention.

	Canals and Railroads.	Tons.
1853.	New York canals	4,247,853
	New York Central railroad	360,040
	New York & Erie railroad	631,039
		5,238,892
1854.	New York canals	4,165,862
	New York Central railroad	549,304
	New York & Erie railroad	743,250
		5,458,916
1855.	New York canals	4,022,617
	New York Central railroad	670,073
	New York & Erie railroad	842,048
		5,534,738
1856.	New York canals	4,116,082
	New York Central railroad	776,112
	New York & Erie railroad	943,215
		5,835,409

	Canals and railroads.	Tons.
1857.	New York canals	3,344,061
	New York Central railroad	838,791
	New York & Erie railroad	978,066
		5,160,918
1858.	New York canals	3,665,192
	New York Central railroad	765,407
	New York & Erie railroad	816,954
		5,247,553
1859.	New York canals	3,781,684
	New York Central railroad	834,319
	New York & Erie railroad	869,073
		5,485,076
1860.	New York canals	4,650,214
	New York Central railroad	1,028,183
	New York & Erie railroad	1,139,554
		6,817,951
1861.	New York canals	4,507,635
	New York Central railroad	1,167,302
	Erie railway	1,253,418
		6,928,355
1862.	New York canals	5,598,785
	New York Central railroad	1,387,433
	Erie railway	1,632,955
		8,619,173

Statement showing the quantities of flour and grain sent eastward from the lake regions, comprising Ohio, Indiana, Michigan, Illinois, Wisconsin, Iowa, Minnesota, and Canada West, during the last eight years:

1856.

	Flour, bbls.	Wheat, bush.	Corn, bush.	Other grain, bush.
Rec'd at west. ter. B. & O. RR.	449,797	.....	.....	487,100
Of Pennsylvania Central railroad	215,000	.....	.....	405,872
Dunkirk	350,000	.....	.....	.....
Buffalo	1,211,189	8,465,671	9,632,477	2,025,519
Sus. Bridge	304,524	.....	.....	900,000
Oswego	202,930	8,382,398	3,589,211	619,280
Ogdensburg	354,964	610,937	477,975	37,432
Cape Vincent	65,000	500,000	45,000	50,000
Montreal	712,038	1,546,352	637,969	67,366
Total eastward	3,865,442	19,505,358	14,282,622	4,592,569

1857.

Received at west. ter. of B. & O. RR.	426,801	.....	.....	256,183
Of Pennsylvania Central railroad	351,011	.....	.....	206,793
Dunkirk	354,072	93,433	114,652	.....
Buffalo	925,411	8,383,875	5,720,413	1,321,456
Sus. Bridge	180,194	148,138	.....	.....
Oswego	101,363	5,353,026	2,003,992	370,249
Ogdensburg	361,578	598,523	517,076	14,740
Cape Vincent	60,472	477,375	40,537	49,408
Montreal	637,052	1,708,965	383,162	38,165
Totals eastward	3,397,954	16,763,285	8,779,832	2,256,944

1858.

	Flour, bbls.	Wheat, bush.	Corn, bush.	Other grain, bush.
Received at west. ter. of B. & O. RR..	682,314	.....	.....	330,871
Of Pennsylvania Central railroad.....	450,000	.....	.....	259,000
Dunkirk	331,007	186,499	94,905	24,965
Buffalo.....	1,614,520	10,735,909	5,621,668	2,789,678
Sus. Bridge.....	200,410	102,694	.....	.....
Oswego.....	95,720	6,572,432	2,913,618	1,292,424
Ogdensburg.....	381,624	790,178	720,236	44,126
Cape Vincent.....	72,633	410,191	40,000	156,631
Montreal.....	664,275	1,769,482	105,087	136,537
Rochester.....	7,110	276,505	.....	9,865
Totals eastward.....	4,499,613	12,843,850	10,495,554	5,035,097

1859.

Rec'd at west. ter. B. & O. R. R.....	466,403	17,800	.....	196,406
Of P. C. R. R.....	350.000	.....	.....	150,000
Dunkirk	432,052	263,463	77,914	14,400
Duffalo	1,502,191	9,550,998	3,151,387	1,993,140
S. Bridge	41,374	57,562	.....	73,346
Oswego.	64,941	4,875,489	804,646	1,342,010
Ogdensburgh	294,569	769,010	298,519	64,702
C. Vincent	9,390	266,735	20,100	216,435
Montreal.....	597,583	638,700	72,430	204,652
Rochester.....	1,764	416,811	.....	8,900
Totals eastward	3,760,274	16,865,708	4,423,006	2,264,051

1860.

Rec'd at West. ter. B. & O. R. R	352,413	.....	.....	126,393
Of P. C. R. R..	526,660	.....	.....	864,160
Dunkirk	542,765	500,888	644,081	8,843
Buffalo	1,122,335	18,502,649	11,386,217	1,632,920
*S. Bridge	650,009	.....	.....	1,875,000
Oswego	121,185	9,449,461	4,966,952	2,043,535
C. Vincent	28,940	203,878	73,300	186,597
Ogdensburgh	248,200	565,022	867,044	48,211
Montreal.....	608,309	2,686,728	138,214	915,648
* Rochester	5,250	425,765	.....	10,725
Totals eastward	4,106,057	31,334,391	18,075,778	7,712,032

1861.

Rec'd at west. ter. B. & O. R. R.....	270,000	.....	.....	80,000
Of P. C. R. R.....	1,055,028	.....	.....	1,948,256
Dunkirk	736,529	604,561	230,400	7,175
Buffalo	2,159,591	27,105,219	21,024,657	5,532,770
S. Bridge	758,915	.....	.....	2,675,948
Oswego.....	147,087	9,809,495	5,508,799	1,796,213
C. Vincent.....	65,407	276,610	124,411	104,591
Ogdensburgh	441,488	677,386	1,119,594	25,666
Montreal.....	937,324	7,390,255	1,516,767	1,504,507
*Rochester.....	2,500	520,618	.....	10,990
Totals eastward	6,533,869	46,384,144	29,524,628	10,686,116

1862.

Rec'd at west. ter. B. & O. R. R	690,000	.....	.....	550,000
West. ter. P. C. R. R.....	890,096	.....	.....	1,622,893
Dunkirk	1,095,365	112,061	149,654	10,173
Buffalo	2,846,022	30,435,831	24,288,627	3,849,620
*S. Bridge	875,000	.....	.....	2,750,000

* Estimated.

	Flour, bbls.	Wheat, bush.	Corn, bush.	Other Grain, bush.
Oswego	235,382	10,982,132	4,528,962	1,467,823
C. Vincent	48,576	306,403	249,360	47,047
Ogdensburgh	576,394	689,930	1,120,176	18,865
*Montreal	1,174,602	8,534,172	3,661,261	961,066
†Rochester	1,000	150,000	.....	6,622
Totals eastward	8,433,037	51,220,529	32,998,049	11,286,109

1863.

Rec'd at west. ter. B. & O. R. R.	750,000	.....	.....	410,000
‡West. ter. P. C. R. R.	850,000	.....	.....	1,800,000
Dunkirk	620,230	86,905	191,035	11,789
Buffalo	2,978,089	21,240,348	20,086,952	8,385,945
‡S. Bridge	775,000	.....	.....	1,500,000
Oswego	115,292	8,785,425	2,676,367	2,364,109
C. Vincent	24,236	206,856	81,698	15,730
Ogdensburgh	475,465	600,299	1,057,299	25,000
†Montreal	1,193,108	5,509,119	862,534	1,405,478
‡Rochester	1,500	85,000	.....	25,000
Totals eastward	7,782,920	36,513,952	24,955,885	15,983,112

The present seems to be auspicious in a financial view for commencing the improvement of the main lines of our canals The finances of the Canal Department are in a flourishing condition, as will be seen by reference to the Auditor's financial report for the fiscal year ending the 30th of September. There was at that time in the treasury, to the credit of the various canal sinking funds, $4,605,144.58, besides having paid, of the canal debt, during the same fiscal year, the sum of $713,300, none of which was due, and which was purchased at a premium.

In addition to the above, there was a surplus of $981,376.17 from that fiscal year, which, added to the surplus revenue of the preceding year of $685,348.69, makes an aggregate amount in two years, subject to the disposal of the Legislature, of $1,636,724.86.

If the Legislature should, in their wisdom, select the quickest method to secure the completion of the improvements, by submitting a law for the approval of the people at an early day, providing for borrowing the necessary amount of money for a period of eighteen years, it is reasonable to conclude that no additional taxation will be imposed upon the people to pay the yearly interest, and provide a sinking fund to discharge the principal when it becomes due, because the amount necessary to pay the annual interest and provide such a sinking fund (estimating the rate of interest to be at five per cent.,) would require annually, but $752,181 .90, not an average of the amount of surplus revenues received for the past two years, and which revenues will be increased by the diminution of the canal debt, and by the reasonably anticipated increased business of the canals.

If a law should be enacted, and referred to the people of the State, as soon as may be constitutionally done, and be approved by them, the improvements could be completed by the opening of navigation in 1866.

The locks of the Cayuga and Seneca canals being of the same capacity as the locks on the Erie and Oswego canals, the Board, at present, make no recommendation in relation thereto.

* These figures are from the Montreal Board of Trade Report for 1863. The Montreal *Witness* says the total receipts of breadstuffs, in bushels, were 25,237,291 in 1862, and the exports were 16,662,626 bushels.

† Estimated.

‡ These figures are from the Montreal Board of Trade Report.

The undersigned has experienced great difficulties and annoyances by reason of the single locks on his division of the Erie Canal. The other sections have double locks, and it has been impossible to prevent delays at the locks, on account of their inability to transact the same business as done by the double locks on the other divisions.

No one now doubts the necessity of enlarged locks, but many doubt the propriety of commencing so much of an undertaking in the present disturbed condition of the country.

The undersigned will not pretend to argue this question; but he suggests, in deference to the wishes of the most timid, is it not best to commence building locks sufficient to pass a boat two hundred feet long and twenty-five feet wide, where there are now single locks? Additional facilities are demanded—are absolutely necessary; and in this manner the present wants, as well as the future, will be subserved.

It should be understood that there are fourteen single locks, beside two guard locks, on the western division.

All of which is respectfully submitted.

F. A. ALBERGER,

BUFFALO, *October* 1, 1864. *Canal Commissioner.*

The following table exhibits the depth of water in the canal as reported by superintendent C. F. Shelley.

	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
Beginning at Buffalo:	ft. in.	ft. in.	ft. in.	ft. in.	st. in.	ft. in.	ft. in.
Under Commercial st. bridge	8 4	7 8	7 6	7 3	7 0	6 6	6 9
Under Evans' st. bridge....	9 0	10 0	7 0	7 6	7 6	7 0	7 3
Under Erie street bridge....	8 0	7 7	7 5	7 9	7 3	7 0	7 3
Over mitre sill, Black Rock	11 7	10 8	10 6	10 0	9 6	10 8	10 5
Under Webster street bridge, Tonawanda	8 0	8 2	8 0	7 6	7 0	7 10	8 2
Under change bridge, Pendleton	8 0	8 0	8 3	8 0	8 3	8 0	8 8
Under Hawley's bridge.....	8 8	8 0	7 10	8 10	8 9	9 9	9 8
Under Hecox bridge.....	9 6	8 4	8 0	9 2	9 6	9 4	10 6
Under Hitchins bridge.....	10 2	10 0	9 10	9 4	9 9	9 9	9 10
Over mitre sill Lockport locks	6 8	.....	6 7	6 9	6 8	6 11	7 0
Under Gasport bridge.....	7 6	7 7	7 2	7 0	7 2	6 9	7 0
Middleport bridge...	7 6	7 0	7 1	6 9	7 0	6 11	7 0
Medina bridge.....	7 8	7 9	7 8	8 4	7 5	7 10	8 1
Knowlesville bridge.	7 4	.....	7 2	7 0	7 1	6 11	7 2
Albion bridge.....	7 0	6 8	6 8	6 9	6 9	6 7	6 8
Brockville bridge...	8 6	8 5	8 5	8 1	8 3	8 6	8 4
West bridge, Holley.	7 6	6 9	6 9	6 10	6 9	6 11	7 1

The following table exhibits the depth of water in the canal as re-reported by superintendent E. B. Strong.

	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
Sec. No. 10—mitre sill:	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
Lock 56.....	7 2	.....	6 10	7 3	7 0	7 3	7 1
57.....	7 0	7 1	7 10	7 0	6 10	7 2	7 1
58.....	7 0	7 2	6 11	6 10	7 0	7 1	7 0
Mud Creek aqueduct.....	7 1	7 2	7 1	7 2	7 2	7 2	7 2
Lock 59, mitre sill	7 1	7 1	7 0	7 1	7 2	7 4	7 3
60, do	7 0	6 11	7 0	7 0	7 1	7 3	7 0
61, do	7 2	7 0	6 10	7 0	7 2	6 10	7 4
62, do	7 2	7 3	6 11	7 2	7 3	7 3	6 11
Newark waste weir	7 2	7 0	7 0	6 11	7 0	7 2	7 2
Palmyra aqueduct.....	.....	7 2	7 1	.....	7 1	7 3	7 3
Lock 63, mitre sill	7 0	7 2	7 2	6 11	7 1	7 4	7 3
64, do	7 2	7 0	7 1	6 10	7 3	7 1	7 2
Section No. 11:							
Fairport waste weir.....	7 4	7 4	7 2	7 2	7 2	7 1	7 2
Stop gate, Bushnell's.....	7 2	7 3	7 1	7 3	7 2	7 2	7 2
Lock 65, mitre sill.....	7 3	7 3	7 3	7 4	7 3	7 2	7 1
66, do	7 1	7 4	7 2	7 2	7 3	7 2	7 3
67, do	7 4	7 2	7 1	7 0	6 11	7 4	7 2
68, do	7 4	7 4	7 3	6 10	7 3	7 0	7 0
69, do	7 3	7 2	7 2	7 0	7 2	7 1	6 10
Rochester aqueduct.....	7 2	7 2	7 1	7 2	7 0	7 2	7 2
Adam's Basin.....	7 1	7 1	7 0	7 3	7 0	7 2	7 2
Spencerport waste weir.....	7 1	7 0	.....	7 2	.....	.....	.....
Brockport waste weir	7 2	7 2	7 1	7 2	7 1	7 2	7 2

ENGINEER'S OFFICE,
ROCHESTER, *December 10th*, 1864.

Hon. F. A. ALBERGER, *Canal Commissioner.*

Dear Sir—The following are extracts from my Annual Report to the State Engineer and Surveyor, viz:

The expense of engineers during the fiscal year, ending Sept. 30th, 1864, is as follows:

On repairs disbursed by engineer	$4,923 61
On maps of record and for Canal Appraisers, &c	165 13
On extraordinary repairs paid by Canal Commissioner	9,315 88
On temporary repairs	1,583 50

Amount of work done during the year is as follows:

On extraordinary repairs	$184,373 12
On ordinary repairs, (besides contract prices for repair sections)	124,304 08

On work under contract Sept. 30th, or adopted to be let, and on repairs in progress, there yet remains to be done the following:

Extraordinary repairs of Erie canal	$104,600 00
Extraordinary repairs of Genesee Valley canal	5,800 00
Ordinary repairs of Erie canal	7,000 00

Funds have not been provided for the following work, although a portion of it is of the greatest importance, nor can it long be delayed without interfering with or obstructing the business of the canal. I submit it, corrected from last year's report:

ON ERIE CANAL.

Completing sections 212, 291, 292, 294, 295, 296, 312, 315, 321 and 322, deficiency	$42,800 00
Completing sections 361, 362, 363, 364, 365 and 366	13,000 00
Raising, enlarging and securing banks	44,000 00
Taking out bench and constructing slope wall from bottom of canal	97,500 00
Excavating earth from bottom of canal, between Cayuga marshes and Clyde	12,500 00
Excavating earth between Macedon and Rochester	5,000 00
Excavating earth and rock from bottom of canal, between Rochester and Lockport	82,500 00
Changing plans of bridges	20,000 00
Completing approaches of bridges	21,000 00
Constructing a tier of locks alongside 13 single locks, from Montezuma marshes to Rochester, estimated at prices of 1861 and previous years	412,000 00
Constructing guard locks at Sulphur Springs, and at Black Rock, by side of single locks	70,000 00
Building lock houses	6,000 00
Excavating for navigation of Main and Hamburgh street canal, Buffalo	16,000 00
Improvement of the portion of Clark & Skinner canal not under contract	10,000 00
Dredging out Erie basin adjoining dock, 300 feet wide	10,000 00
Straightening berme and building a vertical wall from weigh lock to feeder, at Rochester	5,300 00
Constructing the Reed culvert, on repair section No. 12, ¼ mile west of Eagle Harbor, it having failed some five or six years ago	4,600 00
Constructing a culvert on the west part of Tonawanda village, where one was formerly in use	10,000 00
Waste weir near old aqueduct, Rochester	800 00

Covered drain in Lockport, in pursuance of act, chapter 429, Laws of 1864	$5,000 00
Removing bridge abutments in Lockport, in pursuance of act, chapter 473, Laws of 1864	20,000 00
Filling inside of tow path at big embankment west of 4-mile grocery	20,000 00
Making a spillway at Tonawanda	6,400 00
Deficiency for Clark & Skinner canal	2,000 00
Extension of docking in Main and Hamburgh street canal in connection with improvements of Clark & Skinner canal	2,000 00

ON GENESEE VALLEY CANAL.

Repair Section No. 1.

Making spillways to pass flood-water over bank of canal	$1,000 00
Reconstructing culverts by securing found ation	3,000 00
do waste weirs by reconstructing foundation	2,700 00
Changing the valves of lock gates to prevent leakage	1,000 00
Constructing culvert and opening creek channel at Moscow Landing	11,000 00
Raising and strengthening the slide bank on York level	1,400 00
Widening narrow and raising other low banks	1,000 00
Widening channel of canal in cuts at Dumplin Hill and other places	3,000 00

Repair Section No. 2.

Removing trunk at Portage and substituting an earth canal secured in rear with stone	25,000 00
Reconstructing bridge at Nunda under act chap. 482, Laws of 1863, and rebuilding Portageville bridge	5,500 00
Reconstructing waste weirs by securing foundation	3,000 00
do new waste gate	1,500 00
Constructing five stone locks in place of wood locks in addition to those now authorized under act chap. 170, Laws of 1864	70,000 00
Construction of culvert at McGraw's	1,800 00
Constructing lock houses	1,500 00
Excavating slides in canal, one near Portage trunks and one at Van Boskirk's, also protecting banks against further slides	5,300 00
Making spillways to pass floodwater over bank of canal	1,000 00

Repair Section No. 3.

Making spillways to pass water over towing path	600 00
Widening Ischua feeder and raising and enlarging its banks	3,000 00
Enlarging and raising towing path near Cuba	2,000 00
Enlarging other banks at various places	3,000 00
Raising banks near Millgrove Pond	1,100 00
Constructing reservoirs in addition to the sum now provided under act chap. 170, Laws of 1864	85,000 00

Of the work that was under contract at the last annual report, the dam across the Genesee river, at the head of the feeder at Rochester; dredging 17 chains between Erie street and Commercial slip, Buffalo; dredging 800 feet, part of Main and Hamburg street canal, Buffalo, and docking 700 ft. of slip No. 3, Buffalo, have been completed; and 4 culverts which were under contract on repair section No. 12, have been completed.

Two culverts on repair section No. 12, which leaked the previous season were also made safe. Some progress has been made on the sewer in the village of Clyde, and on the improvement of Oak Orchard creek feeder.

The work on the five sections No. 361 to 366, which was authorized at the date of the last report, to be put under contract

between Tonawanda and Black Rock, is about half done. The situation of this work makes it necessary to pump out the water from 5 to 7 feet deep. The measurements of work on the part where the water was out last winter, show that there will be an increase in the expense of this work of about $13,000.

Work was done during last winter excavating earth and rock from bottom of the canal on 12 sections, between Brockport and Lockport. Three of the sections, viz: Nos. 319, 329 and 332 were completed. The quantities embraced in these sections as found by measurement, when the water was drawn out of the canal, will largely exceed the former estimate, the data for which were soundings in the canal during the season of navigation; and the rock is found in much larger excess than the earth.

A portion of the work was done during last winter on section No. 212, in the village of Clyde.

Besides the foregoing work a portion of the Clark and Skinner canal has been put under contract, and the following named works have been put under contract under special acts of the Legislature, viz: sewer in the village of Newark, sewer in the village of Albion, Pickard's bridge, and bridge at New Home road, both over Tonawanda creek, where used as part of the Erie canal.

The superstructures of three bridges have been constructed of iron in place of wood, viz: Michigan street bridge, over the Main and Hamburg street canal, at Buffalo; Elk street bridge over the Ohio basin slip, Buffalo, and the bridge on the military road at Tonawanda; all of these bridges were on streets and thoroughfares of large travel.

A vertical wall has been built at Fort Gibson, extending 120 feet from the road bridge, east to the first basin, where the face of the canal bank was left on the close of the enlargement in an unsuitable condition.

Other repairs have been made and directed as extraordinary repairs, but as the accounts were kept as miscellaneous payments, or paid by draft as extra repairs on repair contracts, they will be alluded to under the head of repairs.

(See page 78 State Engineer's Report for last year, from the beginning of third paragraph, and including to the Genesee Valley canal.)

REPAIRS.

Graveling the towing path has been done to some extent on the several repair sections, vertical and slope walls reconstructed,

lock gates removed, improved valves have been put on lock gates, which work more perfectly, many wood bridges have been reconstructed or the chords spliced and coping timber on the vertical walls renewed, and in Buffalo and at Black Rock a large quantity of deposit has been dredged out and some at Pendleton and Lockport.

GENESEE VALLEY CANAL.

Extraordinary Repairs.

The work has been completed which was embraced in the contracts for raising the waters of Oil creek and the construction of a dam across the Ischua creek at the head of the feeder. It was found upon keeping the waters to the height provided, the face of the banks along the roads were washed off and narrowed down, which required large quantities of material to replace the same and keep them safe hereafter.

This work is being done around Oil-creek reservoir and the face protected with loose stone to such an extent as seemed necessary. A few points may require further protection and some additional embankment; some work of the same kind is also in progress along the Ischua reservoir.

The superstructures of two bridges on Plymouth avenue, Rochester, and one in Mount Morris have been constructed of iron in place of wood, and their abutments and approaches raised and extended in pursuance of act, chap. 482, Laws of 1863.

GENESEE VALLEY CANAL.

The unfinished work mentioned in the last annual Report, to repair the damage done by the heavy breaks and to protect and secure the canal, progressed until the canal was deemed reasonably safe.

A deep deposit of earth has been cleared out on several miles of the canal.

Bridges have been reconstructed and some of the waste weirs secured.

The coping timber of several of the composite locks has been renewed, also the upper part of the side planking and the posts.

Break of August 17th, 1864.

The damage to the canal was caused by a storm extending

from the southwest through a portion of Cattaraugus county along the head waters of Ischua creek and tributary streams, and in Allegany county along the Caneadea, Houghton and Cold creeks, crossing the canal in region of the two latter creeks, crossing the Cashequa creek in the northern part of Allegany and southern part of Livingston counties, also crossing the Dansville branch between Keysorville and Dansville.

The heavy damage done was a break around the Ischua dam, the destruction of the Caneadea creek aqueduct a structure of 8 stretches, many breaks and deposits between the aqueduct and a point 10 miles north, also on 8 miles of canal below Nunda in the Cashequa valley, and on some three miles on the Dansville branch. The repairs of this casualty were immediately commenced and were in progress on the 30th of September the end of the fiscal year.

Work to be done.

The upper part of the side planking and studding on the face of the composite locks and the coping timbers on the top of the walls on repair sections Nos. 2 and 3 are so nearly decayed as to require to be renewed except the few already done.

This timber work was built in 1849 and 1850, on repair section No. 2, consequently has been in use some 14 or 15 years, but the plank have heretofore required considerable repairs.

Many of the culverts and waste weirs to which attention was called in my last report remain in the same condition and require extensive protection. Their condition and manner of repairs will be found on page 80 of the last annual report of the State Engineer and Surveyor.

PORTAGE TRUNKS.

The importance of doing away with these structures without delay will palliate an extract from last report:

The trunks at Portage were originally constructed of wood, resting on piles, at locations where the earth was sliding into the river. They were designed for a temporary purpose, and were to be replaced with earth embankment whenever the foundation of the earth had been properly secured. When they were built timber in this immediate vicinity cost little in comparison with present prices. Heavy walls of stone have since been built on the rock to secure the earth. The trunk timbers are very much decayed, and suitable materials for replacing them cannot now be obtained in the immediate vicinity. The price of lumber is also too high to make its use economical. For safety, temporary bents have been placed under several of the stretchers, and braces inserted for strength-

ening the structure. These expenses will have to be continued until a change of plan shall be adopted. This work should be commenced early next spring, in order that it may be ready by the opening of navigation in 1865, that being the earliest period at which it can advantageously be completed.

Wood Locks.

Five of the wood locks on repair section No. 2, were authorised under act, chap. 170, Laws of 1864, to be reconstructed of stone. It was so late in the season before funds were provided for their reconstruction, that it was impracticable to procure the materials to build them during the following winter.

They were, however, put under contract, and the work, in procuring materials, is to be commenced early next spring, and completed for navigation in spring of 1866. The character of the work adopted is to build the walls of rubble masonry.

Five more of the locks should be authorised this winter.

Reservoirs.

The raising the waters of Oil-creek reservoir, under act, chap. 342, Laws of 1863, provided on the opening of navigation last spring an addition of three feet in depth on a mean area of about 450 acres.

In my last report (pages 81 and 82), I made a statement of the length of time this reservoir was dry, for each year, from 1859 to 1863, inclusive.

During the present season, 1864, there was, in the reservoir, at the time of the break of August 17th, about three weeks' supply for the canal, which was increased during the rain about one week's supply, which would have kept up navigation until the fifteenth of September; and had there been no break there would have been a want in the supply for at least four weeks.

I again state the want of supply in a tabular form:

Year.	Detention and time from and to.	Days.
1859.	From September 7th to 21st, and from November 7th to 13th.....	20
1860.	.....	0
1861.	From September 25th to 28th.....	3
1862.	From August 25th to October 24th.....	60
1863.	From August 3d to November 2d.....	60
1864.	From September 15th to October 15th.....	30

Surveys have been commenced under act, chap. , Laws of 1864, for making a reservoir of Lime Lake. It is contemplated to draw the lake down five feet below its present level, and to raise the water fifteen feet above its present level, which will make a reservoir twenty feet deep, having a bottom area of about one hundred and twenty acres, and a surface area of some two

hundred and seventy acres, furnishing one hundred and seventy millions cubic feet. This quantity will serve to keep up navigation (together with the quantity furnished by the streams), about thirty days longer than by the present supply during the season.

Lime Lake is a basin of water without any streams running into it. A small stream runs from it, forming, with other streams, the head waters of Cattaraugus creek, which runs into Lake Erie. At the outlet of the lake the water suffices to run a mill of three run of stone, principally for custom work, during the year.

It is designed to fill the reservoir from the flood waters of the Ischua creek, by cutting a channel a mile long, which are ample to fill the same before the opening of navigation in the spring. It is also expected that during occasional storms during the summer, some water can be obtained and held from the same source.

Navigation.

After the repair of the break in October, 1863, there was good navigation, excepting on the summit, until the end of the year. There was also good navigation during the present season, from the opening in the spring until the break of August 17.

Labor.

The price of common labor on the canals in the fall of 1863 ranged from $\$1.37\frac{1}{2}$ to $\$1.62\frac{1}{2}$ per day; during the winter and spring following from $1.50 to $1.75, and in the summer 1864, $2.

Respectfully submitted by

ORVILLE W. STOREY, *Engineer.*

TABLES

ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONERS.

The following is a Schedule of all Repair Contracts let in pursuance of act, chap. 105, *Laws of* 1857, *to the present time, and shows the commencement of the several terms, the canal or section embraced in the contracts, the duration of each term, the annual compensation to the contractor, and the several amounts of cash deposits as security for the performance of the contracts.*

Commencement of term.	Canal and section.	Duration of term.	Annual compensation.	Cash security.	Remarks.
February 1, 1859	Oswego, section 2	3 years	$12,899		Expired February 1, 1862.
February 1, 1859	Chemung and feeder	do	13,475		do do
February 1, 1859	Chenango, section 3	do	4,900		Abandoned March 5, 1861.
February 1, 1859	Erie, section 9	do	4,995 750		do do
February 1, 1859	Erie, section 7	do	2,473		Abandoned February 28, 1861.
April 1, 1859	Cayuga and Seneca	do	3,574		Abandoned March 15, 1861. [doned Oct. 14, 1861.
May 1, 1859	Genesee Valley, section 1	do	4,800		And 9 cents per cubic yard for excavation; aban-
May 1, 1859	Genesee Valley, section 3	do	4,389		Abandoned March 8, 1860.
May 1, 1859	Erie, section 10	do	6,190		do May 1, 1859.
May 1, 1859	Erie, section 12	do	3,453		do February 4, 1862.
May 1, 1859	Erie, section 13	do	5,495		do December 19, 1860.
May 1, 1859	Champlain, section 1	do	8,973		do April 2, 1860.
May 1, 1859	Champlain, section 2	do	6,800		do do
May 1, 1859	Champlain, section 3	do	5,350		do do
May 1, 1859	Erie, section 2	do	7,900		do October 8, 1859.
May 1, 1859	Erie, section 3	do	7,440		Expired May 1, 1862.
May 1, 1859	Erie, section 4	do	8,849		do do
May 1, 1859	Erie, section 5	do	2,995		Abandoned August 20, 1859.
May 1, 1859	Oswego, section 1	do	2,800		Expired May 1, 1862.
October 1, 1859	Erie, section 10	do	7,800		Abandoned October 8, 1859.
October 1, 1859	Erie, section 11	do	8,280		Expired October 1, 1862.
March 1, 1860	Erie, section 14	do	14,500		do March 1, 1863.
October 1, 1859	Erie, section 8	do	7,000	$2,000	do do
November 1, 1859	Improvement of Black river	5 years	3,800	2,000	
March 4, 1860	Erie, section 1	3 years	28,440	4,000	do March 4, 1863.
March 4, 1860	Erie, section 2	do	9,700	2,000	do do
March 4, 1860	Erie, section 5	do	5,890	2,000	do do
March 4, 1869	Erie, section 10	do	9,430	2,000	do do
August 1, 1860	Champlain, section 1	5 years	8,659	2,000	Abandoned June 1, 1862.

August	1, 1860	Champlain, section 2	do	9,300	2,000	
August	1, 1860	Champlain, section 3	do	4,300	2,000	Abandoned May 26, 1863.
August	1, 1860	Genesee Valley, section 3	do	7,433	2,000	
October	1, 1860	Oneida Lake and feeder	do	2,375	2,000	
October	1, 1860	Crooked Lake	do	3,869	2,000	
October	1, 1860	Chenango, section 1	do	11,500	2,000	Abandoned March 5, 1861.
October	1, 1860	Chenango, section 2	do	5,600	2,000	
March	1, 1861	Black River, section 2	do	4,178	2,000	
March	15, 1861	Erie, section 13	do	9,800	4,000	
March	15, 1861	Genesee Valley, section 2	do	12,540	3,000	
May	1, 1861	Erie, section 7	do	3,490	4,000	
May	1, 1861	Erie, section 9	do	7,000	4,000	
May	1, 1861	Black River, section 1	4⅛ years	8,700	4,000	
May	1, 1861	Chenango, section 1	5 years	13,990	4,000	
May	1, 1861	Chenango, section 3	do	7,000	4,000	
June	1, 1861	Cayuga and Seneca	4 years	4,490	4,000	Abandoned April 15, 1852.
May	1, 1862	Erie, section 3	4⅛ years	10,900	4,000	Abandoned July 21, 1863,
May	1, 1862	Erie, section 4	4¼ years	12,780	4,000	
November	1, 1862	Erie, section 8	4+ do	4,940	4,000	
November	1, 1862	Erie, section 11	4+ do	11,900	4,000	
April	1, 1862	Erie, section 12	4⅜ years	6,700	4,000	
October	1, 1862	Champlain, section 1	4½ years	13,848	4,000	
May	1, 1862	Oswego, section 1	4⅛ years	9,000	4,000	
May	1, 1862	Oswego, section 2	do	11,900	4,000	
July	1, 1862	Cayuga and Seneca	4½ do	9,950	4,000	
April	1, 1862	Chemung and feeder	4⅝ do	15,960	4,000	
February	1, 1862	Genesee Valley, section 1	5 do	8,472	4,000	
March	4, 1863	Erie, section 1	3¾ do	39,900	4,000	
March	4, 1863	Erie, section 2	do	14,500	4,000	
March	4, 1863	Erie, section 5	do	4,483	4,000	
March	4, 1863	Erie, section 10	do	11,960	4,000	
March	1, 1863	Erie, section 14	do	14,400	4,000	
August	1, 1863	Champlain, section 3	do	7,500	4,000	

The following is a Schedule of Repair Contracts, with the percentage allowed in pursuance of act, chap. 252, *Laws of* 1864, *and the sections relet in pursuance of act, chap.* 105, *Laws of* 1857, *which were abandoned August* 1, 1864.

Commencement of term.	Canal and section.	Duration of term.	Original annual compensation.	Percen'e allowed.	Annual compensation including percentage.	Abandoned.
March 4, 1863.....	Erie canal, section 1.....	3¾ years.....	$39,900 00	72	$68,628 00	
	do 2.....	.....	14,500 00	61	.....	August 1, 1864.
	do 4.....	.....	12,780 00	65	.....	do
	do 5.....	.....	4,483 00	70	.....	do
May 1, 1861.....	do 7.....	5 years.....	3,490 00	62	5,653 80	
	do 8.....	.....	4,940 00	60	.....	September 22, 1864.
May 1, 1861.....	do 9.....	5 years.....	7,000 00	61	11,270 00	
March 4, 1863.....	do 10.....	3¾ years.....	11,960 00	62	19,375 20	
Nov. 1, 1862.....	do 11.....	4 years.....	11,900 00	60	19,040 00	
April 1, 1862.....	do 12.....	4¾ years.....	6,700 00	51	10,117 00	
	do 13.....	.....	9,800 00	70	.....	August 1, 1864.
	do 14.....	.....	14,400 00	70	.....	do
April 1, 1862.....	Chemung canal, section 1.....	4½ years.....	15,960 00	60	25,536 00	
May 1, 1861.....	Chenango canal, do 1.....	4¾ years.....	13,990 00	50	20,985 00	
	do do 2.....	.....	5,600 00	50	.....	do
May 1, 1861.....	do do 3.....	5 years.....	7,000 00	53	10,710 00	
October 1, 1860.....	Oneida Lake, do 1.....	do	2,375 00	.....	2,375 00	
May 1, 1862.....	Oswego canal, do 1.....	4¾ years.....	9,000 00	35	12,150 00	
May 1, 1862.....	do do 2.....	do	11,900 00	50	17,850 00	
July 1, 1862.....	Cayuga and Seneca, section 1.....	4½ years.....	9,950 00	41	14,029 50	
October 1, 1860.....	Crooked Lake canal, do 1.....	5 years.....	3,869 00	55	5,996 95	
	Genesee Valley canal, do 1.....	do	8,472 00	60	.....	August 1, 1864.
	do do 2.....	do	12,540 00	60	.....	August 15, 1864.
August 1, 1860.....	do do 3.....	do	7,433 00	50	11,149 50	
	Champlain canal, do 1.....	4½ years.....	13,848 00	60	.....	August 1, 1864.
August 1, 1860.....	do do 2.....	5 years.....	9,300 00	60	.....	do
August 1, 1863.....	do do 3.....	3¾ years.....	7,500 00	60	12,000 00	
May 1, 1861.....	Black River canal, do 1.....	4¾ years.....	8,700 00	50	13,050 00	
March 1, 1861.....	do do 2.....	5 years.....	4,178 00	50	6,267 00	
Nov. 1, 1859.....	Black River Improvement, section 1..	do	3,800 00	50	5,700 00	

			Contracts Let.		Annual compensation.
October 1, 1864	Erie canal, section 2		3½ years		$18,000 00
do	do	3	3½ years		16,780 00
do	do	4	3½ years		22,900 00
do	do	5	do		12,000 00
do	do	13	do		14,400 00
do	do	14	do		24,970 00
do	Chenango,	2	do		16,400 00
do	Genesee Valley,	1	do		19,400 00
do	Champlain,	1	do		25,800 00
do	do	2	do		19,400 00

STATEMENT *showing amounts expended by superintendents of repairs and paid repair contractors, and average cost per mile, on each and all canals, from* 1827 *to* 1863 *inclusive.*

YEARS.	ERIE AND CHAMPLAIN CANALS.		OSWEGO CANAL.		CAYUGA AND SEN. CANAL.		CHEMUNG CANAL.		CROOKED LAKE CANAL.	
	Cost of repairs.	Av'ge per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.
1827	$232,472	$528	.....	.....	.....	.....	.....	.....	.....	.....
1828	225,846	513	$8,637	$329	.....	.....	.....	.....	.....	.....
1829	232,931	529	13,003	361	$8,499	$386	.....	.....	.....	.....
1830	202,968	461	12,500	349	5,477	247	.....	.....	.....	.....
1831	168,240	382	9,170	254	3,363	152	.....	.....	.....	.....
1832	327,302	743	12,259	340	5,356	243	.....	.....	.....	.....
1833	328,585	746	11,295	313	8,243	374	$24,666	$666	.....	.....
1834	429,659	976	12,181	338	8,832	401	25,639	692	$2,653	$331
1835	392,921	893	16,327	453	9,685	440	9,616	259	3,556	454
1836	310,183	704	51,637	1,434	29,898	1,358	9,665	261	4,739	592
1837	365,406	830	57,908	1,608	28,539	1,297	14,569	393	6,214	776
1838	374,713	851	49,360	1,371	18,994	861	13,394	364	4,454	556
1839	297,722	676	24,463	679	23,397	1,063	13,302	361	3,557	443
1840	364,292	827	34,796	915	24,740	1,124	12,401	335	4,501	562
1841	255,687	581	26,406	694	13,940	633	23,360	631	9,034	1,129
1842	322,354	732	31,427	827	15,829	719	34,524	933	8,113	1,014
1843	297,614	676	23,678	623	10,938	497	14,295	386	4,047	505
1844	371,449	844	28,598	752	14,442	656	12,703	344	3,951	493
1845	399,094	907	46,639	1,227	14,191	645	17,978	485	4,765	595
1846	371,185	843	53,546	1,409	12,325	560	14,264	385	5,309	663
1847	380,388	864	39,551	1,040	14,192	645	15,917	430	5,890	736
1848	503,953	1,145	72,783	2,021	13,009	591	27,232	736	8,516	1,064
1849	395,681	899	32,792	868	11,824	537	24,306	657	10,296	1,287
1850	478,887	1,085	31,805	837	10,831	492	33,230	852	5,620	905
1851	437,458	972	31,045	817	20,576	895	37,741	968	5,319	665
1852	558,329	1,252	42,728	1,124	27,606	1,200	32,620	836	7,751	969
1853	575,777	1,271	38,026	1,000	17,421	680	24,366	625	4,932	616
1854	677,270	1,543	86,529	2,277	17,025	680	30,653	786	5,132	641
1855	505,608	1,154	59,192	1,448	12,880	560	22,853	560	4,316	539
1856	454,865	1,031	59,854	1,574	9,364	448	17,209	441	3,647	456
1857	458,742	1,035	78,017	2,053	13,234	575	87,314	2,238	4,447	556
1858	435,916	973	107,698	2,834	21,769	946	105,605	3,862	9,803	1,225

1859	446,746	999	48,253	1,269	5,850	334	31,065	883	4,349	606
1860	229,008	526	15,639	412	3,492	159	12,431	319	4,598	575
1861	206,952	476	25,552	672	19,284	876	23,455	601	6,186	773
1862	240,650	533	31,191	725	19,059	657	27,024	692	7,557	933
1863	323,625	744	29,090	765	11,829	537	80,583	20,066	5,142	643
1864	519,505	1,194	27,414	721	14,973	681	29,141	747	23,697	2,962

Statement of Superintendents' expenditure—Continued.

YEARS.	CHENANGO CANAL.		GENESEE VALLEY CANAL.		ONEIDA LAKE CANAL.		BLACK RIVER CANAL.		ONEIDA RIVER IMPROVEMENT. B. V. CANAL.		Total miles	Total cost of repairs.	Total average per mile.
	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.			
1827	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	400	$232,473	$528
1828	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	478	234,433	490
1829	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	254,433	509
1830	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	221,005	442
1831	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	180,773	361
1832	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	344,917	690
1833	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	537	372,789	694
1834	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	545	478,964	879
1835	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	545	432,118	793
1836	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	545	406,122	745
1837	$19,509	$201	.....	.....	.....	.....	.....	.....	.....	.....	642	492,144	766
1838	10,809	214	.....	.....	.....	.....	.....	.....	.....	.....	642	481,774	750
1839	17,248	177	.....	.....	.....	.....	.....	.....	.....	.....	642	379,769	591
1840	15,427	159	$4,529	$125	.....	.....	.....	.....	.....	.....	694	460,686	664
1841	15,563	160	10,460	290	$3,370	$561	.....	.....	.....	.....	700	357,828	511
1842	18,955	195	17,749	341	3,608	601	.....	.....	.....	.....	700	452,559	646
1843	15,062	155	15,210	292	2,232	372	.....	.....	.....	.....	700	383,076	547
1844	15,959	164	15,556	299	1,636	272	.....	.....	.....	.....	700	464,329	663
1845	18,951	195	16,901	325	1,933	322	.....	.....	.....	.....	700	520,452	743
1846	18,452	190	17,399	334	17,875	2,979	.....	.....	.....	.....	700	510,355	729
1847	18,859	194	15,782	303	5,842	973	.....	.....	.....	.....	700	496,424	709
1848	20,901	215	26,577	510	1,855	309	.....	.....	.....	.....	700	674,777	964
1849	25,888	267	18,183	350	1,160	390	.....	.....	.....	.....	700	521,122	744
1850	27,189	280	18,575	357	4,892	815	$15,508	$398	$412	$21	762	626,950	823
1851	29,832	307	32,938	383	3,591	449	21,516	448	2,250	112	817	722,259	762
1852	36,730	375	79,587	904	6,360	1,060	30,731	667	2,084	104	887	824,533	929
1853	38,243	394	55,766	634	6,166	770	26,830	488	1,554	78	887	789,082	901
1854	49,187	507	48,093	546	10,440	1,740	28,548	570	3,255	162	887	960,265	1,082
1855	49,232	486	49,000	415	6,236	1,039	34,000	578	3,706	185	901	781,688	868
1856	13,903	143	34,271	381	2,589	432	17,204	441	2,482	124	901	616,014	684

1857.....	27,826	265	60,650	514	3,119	519	15,179	155	3,591	179	909	752,575	828
1858.....	44,114	455	80,911	686	4,104	586	18,622	190	2,797	140	917	878,721	958
1859.....	26,068	269	48,490	394	3,975	568	24,926	255	1,079	54	917	630,615	688
1860.....	26,934	278	38,518	304	4,059	676	22,287	237	.....	.....	866	356,966	412
1861.....	22,593	233	28,450	224	3,242	540	23,402	249	1,070	89	878	360, 87	410
1862.....	29,086	299	64,711	534	2,475	353	23,629	241	450	22	924	342,817	371
1863.....	31,897	328	49,964	393	2,375	395	20,455	217	.....	.....	924	555,052	601
1864.....	40,846	421	166,227	1,309	2,543	424	21,646	230	632	53	.....	846,624	943

TABLE

Exhibiting the date of the opening and the closing of the Hudson river, and the number of days open; also the time of commencement and close of each navigable season of canals, and the number of days of navigation since 1824; *also the date of the opening of Lake Erie, since* 1827.

Opening and closing of the Hudson river.					Commencement and close of navigation of Erie canal.				Opening of the lake.	
River open.		River closed.		Days open.	Canal open.		Canal closed.		Navigable days.	
March	3, 1824	January	5, 1824	309	April	30, 1824	December	4	219	
March	6, 1825	December	13, 1825	283	do	12, 1825	do	5	238	
February	25, 1826	December	24, 1826	302	do	20, 1826	do	18	243	
March	20, 1827	November	25, 1827	251	do	22, 1827	do	18	241	April 21, 1827
February	8, 1828	December	23, 1828	220	March	27, 1828	do	20	269	Apri 1, 1828
April	1, 1829	January	14, 1829	286	May	2, 1829	do	17	230	May 10, 1829
March	15, 1830	December	25, 1830	283	April	20, 1830	do	17	242	May 5, 1830
do	15, 1831	do	6, 1831	263	do	16, 1831	do	1	230	May 8, 1831
do	25, 1832	do	21, 1832	289	do	25, 1832	do	21	241	April 27, 1832
do	21, 1833	do	13, 1833	277	do	19, 1833	do	12	238	do 23, 1833
February	29, 1834	do	15, 1834	291	do	17, 1834	do	12	240	do 6, 1834
March	25, 1835	November	30, 1835	268	do	15, 1835	November	30	230	May 8, 1835
April	4, 1836	December	7, 1836	248	do	25, 1836	do	26	216	April 27, 1836
March	27, 1837	December	14, 1837	261	do	20, 1837	December	9	234	May 16, 1837
March	19, 1838	November	25, 1838	257	do	12, 1838	November	25	228	March 31, 1838
March	25, 1839	do	18, 1839	286	do	20, 1839	December	16	241	April 11, 1839
February	25, 1840	do	5, 1840	285	do	20, 1840	do	9	228	do 27, 1840
March	24, 1841	do	19, 1841	286	do	24, 1841	November	30	221	do 14, 1841
February	4, 1842	do	28, 1842	308	do	20, 1842	do	28	222	March 7, 1842
April	13, 1843	December	10, 1843	242	May	1, 1843	do	30	214	May 6, 1843
March	18, 1844	do	17, 1844	278	April	18, 1844	do	28	222	March 14, 1844
February	24, 1845	do	3, 1845	283	do	15, 1845	do	29	228	April 3, 1845
March	18, 1846	do	14, 1846	275	do	16, 1846	do	25	224	do 11, 1846
April	7, 1847	do	25, 1847	263	May	1, 1847	do	30	214	do 23, 1847
March	22, 1848	do	27, 1848	292	May	1, 1848	December	9	223	do 9, 1848
March	19, 1849	do	26, 1849	286	May	1, 1849	do	5	219	March 25, 1849

March	10, 1850	do	17, 1850	282	April	22, 1850	do	11	234	March	25, 1850
February	25, 1851	do	14, 1851	293	do	15, 1851	do	5	235	April	2, 1851
March	28, 1852	do	23, 1852	270	do	20, 1852	do	16	239	do	20, 1852
do	23, 1853	do	21, 1853	274	do	20, 1853	do	20	245	do	14, 1853
do	17, 1854	do	8, 1854	266	May	1, 1854	do	3	217	do	29, 1854
do	27, 1855	do	20, 1855	268	do	1, 1855	do	10	224	do	21, 1855
April	11, 1856	do	14, 1856	248	do	5, 1856	do	4	214	May	2, 1856
February	27, 1857	do	27, 1857	303	do	6, 1857	do	15	223	April	27, 1857
March	20, 1858	do	17, 1858	273	April	28, 1858	do	8	225	do	15, 1858
do	13, 1859	do	10, 1859	273	do	15, 1859	do	12	242	do	7, 1869
do	6, 1860	do	14, 1860	283	do	25, 1860	do	12	232	do	17, 1860
do	5, 1861	do	23, 1861	294	May	1, 1861	do	10	224	do	13, 1861
April	4, 1862	do	19, 1862	259	do	1, 1862	do	10	224	do	15, 1862
April	3, 1863	do	11, 1863	253	do	1, 1863	do	9	223	do	3, 1863
March	11, 1864	do	12, 1864	277	April	30, 1864	do	8	223	do	13, 1864

SCHEDULE

Of contracts let by Board of Canal Commissioners under acts, chaps. 327, *Laws of* 1854, *and* 554 *of* 1855, *showing the commencement of the several terms, the canal or section embraced in the contract, the duration of each term, and the annual compensation to the contractors.*

Commencement of term.	Canal and section.	Duration of term.	Annual compensation	Remarks.
October 1, 1854..	Section 8, Erie canal	5 years	$7,370	Expired October 1, 1859
March 1, 1855..	Section 1, Erie canal	do	43,000	March 4, 1860
October 1, 1855..	Section 1, Chenango canal	do	14,700	October 1, 1860
October 1, 1855..	Section 2, Chenango canal	do	6,000	October 1, 1860
October 1, 1855..	Oneida Lake canal	do	3,975	October 1, 1860
October 1, 1855..	Crooked Lake canal	do	4,473	October 1, 1860
January 1, 1856..	Section 1, Black River canal	do	3,999	January 1, 1861
January 1, 1856..	Section 2, Black River canal	do	9.985	January 1, 1861
April 15, 1858..	Addition to sec. 2, Black River canal. See chap. 185, Laws of 1858	.....	2,000	January 1, 1861
Feb'y 1, 1856..	Section 2, Genesee Valley canal	5 years	13,900	Febru'y 1, 1861

STATEMENT

Of the number, class and tonnage of boats on the canals on the 1st of January, 1844; also the number, class and tonnage of boats built and registered in each year, subsequently to, and including 1862.

Tons.	Prior to Jan. 1, 1844.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
300																				
250																				
240																				
230																				
225																				
220																				
210																				
200																				
195																				
190																				
180																				
175																				
170																	1	170		
160																				
150															2	300			1	150
145																				
140																				
135																				
130													1	130			1	130	2	260
125																	1	125		
120													1	120			2	240		
115																				
110																				
105																				
100													2	200	13	1,300	27	2,700	34	3,400
95					4	95	1	95	6	570			4	380	6	570	23	2,185	63	5,985
90	2	180	1	90	1	360	6	540	27	2,430	10	900	4	360	25	2,250	72	6,480	90	8,100

STATEMENT.—Continued.

Tons.	Prior to Jan. 1, 1844.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
85....	1	85	.....	.....	1	85	7	595	45	3,825	20	1,785	13	1,105	16	1,360	11	935	22	1,870
80....	3	240	9	720	13	1,040	100	8,000	560	44,800	148	11,840	78	6,240	38	3,040	28	2,240	26	2,080
75....	14	1,050	33	2,475	60	4,500	186	13,950	553	41,475	158	11,850	75	5,625	17	1,275	22	1,650	10	750
70....	175	12,250	124	8,680	107	7,490	123	8,610	162	11,340	59	4,130	20	1,400	20	1,400	18	1,260	9	630
65....	295	19,175	94	6,110	54	3,510	26	1,690	44	2,860	13	845	2	130	4	260	1	65	4	260
60....	526	31,560	71	4,260	33	1,980	9	540	30	1,800	25	1,500	7	420	3	180	2	120	2	120
55....	256	14,080	15	825	4	220	1	55	13	715	8	440	.....	.....	....	.....	....	.....	....	.....
50....	457	22,850	14	700	5	250	3	150	4	200	2	100	2	100	4	200	1	50	6	300
45....	158	7,110	1	45	2	90	1	45	3	135	4	180	.....	.....	....	.....	1	45	....	.....
40....	148	5,920	.....	.....	.....	.....	3	120	4	160	1	40	.....	.....	3	120	1	40	....	.....
35....	33	1,155	1	35	1	35	.....	.....	3	105	.....	.....	.....	.....	....	.....	1	35	....	.....
30....	34	1,020	11	330	1	30	2	60	3	90	6	180	4	120	....	.....	....	.....	....	.....
25....	10	250	3	75	.....	.....	4	100	3	75	.....	.....	.....	.....	....	.....	....	.....	....	.....
20....	8	160	.....	.....	3	60	3	60	2	40	.....	.....	2	40	....	.....	....	.....	....	.....
15....	3	45	1	15	.....	.....	.....	.....	1	15	1	15	.....	.....	....	.....	....	.....	....	.....
10....	4	40	.....	.....	1	10	2	20	2	30	1	10	.....	.....	....	.....	....	.....	2	20
5....	.....	.....	.....	.....	4	20	.....	.....	.....	.....	.....	.....	.....	.....	1	5	....	.....	....	.....
2....	.....	.....	.....	.....	3	6	.....	.....	.....	.....	.....	.....	.....	.....	....	.....	....	.....	....	.....
Totals.	2,127	117,170	378	24,360	297	19,781	477	34,630	1,466	110,665	457	33,765	215	16,370	152	12,260	213	18,470	271	23,925

Statement of the Number, Class and Tonnage of Boats—Continued.

Tons.	1853.		1854.		1855.		1856.		1857.		1858.		1859.		1860.		1861.		1862.		1863.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
300.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	1	300	....	.....	...	.....
280.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	2	560	....	.....
250.....	3	750	2	500	....	.....	1	250	1	250	1	250	2	500	2	500	15	3,750	3	750	....	.....
240.....	1	740	....	.....	1	240	2	480	....	.....	....	.....	....	.....	....	.....	5	1,200	1	240	....	.....
230.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	2	460	2	460	3	690
225.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	12	2,700	28	6,300	2	450
220.....	1	220	1	220	....	.....	....	.....	....	.....	....	.....	....	.....	3	660	41	9,020	87	19,140	69	15,180
210.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	5	1,050	16	3,360	....	.....
200.....	5	1,000	3	600	4	800	....	.....	3	600	3	600	4	800	33	6,600	169	33,800	298	59,600	254	50,800
195.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	1	195	2	390	....	.....
190.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	16	3,040	6	1,140	25	4,750
180.....	....	.....	....	.....	....	.....	4	720	....	.....	7	1,260	12	2,160	60	10,800	36	6,480	11	1,980	70	12,600
175.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	5	875	22	3,850	....	.....
170	....	.....	1	170	....	.....	....	.....	....	.....	15	2,250	7	1,190	17	2,890	3	510	....	.....	8	1,360
160.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	1	160	4	640	9	1,440
150.....	6	900	13	1,950	2	300	2	300	51	7,650	46	6,900	11	1,650	14	2,100	27	4,050	88	13,200	24	3,600
145.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	1	145	....	.....	....	.....
140.....	....	.....	....	.....	....	.....	4	560	15	2,100	5	700	1	140	2	280	19	2,660	13	1,820	14	1,960
135.....	....	.....	....	.....	....	.....	5	675	2	270	....	.....	....	.....	2	270	1	135	2	270	....	.....
130.....	7	910	9	1,170	43	5,590	22	2,860	16	2,080	4	520	2	260	2	260	3	390	4	520	16	2,080
125.....	18	2,250	105	13,125	18	2,250	14	1,750	21	2,625	15	1,875	1	125	5	625	8	1,000	1	125	3	375
120.....	16	1,920	143	17,160	125	15,000	118	14,160	84	10,080	13	1,560	9	1,080	22	2,640	15	1,800	12	1,440	15	1,800
118.....	10	1,150	34	3,910	17	1,955	13	1,495	4	460	....	.....	....	.....	....	.....	....	.....	7	826	....	.....
115.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	5	575	....	.....	4	460	3	345
110	16	1,760	87	9,570	13	1,430	10	1,100	6	660	3	330	1	110	4	440	5	550	5	550	5	550
105.	....	.....	....	.....	....	.....	1	105	2	210	....	.....	2	210	....	.....	1	105	....	.....	....	.....
100.....	79	7,900	83	8,300	28	2,800	28	2,800	8	800	25	2,500	14	1,400	55	5,500	67	6,700	194	19,400	61	6,100
95.....	180	17,100	69	6,555	40	3,800	38	3,610	18	1,710	15	1,425	5	475	13	1,235	19	1,805	21	1,995	14	1,330
90.....	164	14,760	95	8,550	58	5,220	69	6,210	43	3,870	16	1,440	36	3,240	42	3,780	41	3,690	51	4,590	102	9,180
85.....	22	1,870	20	1,700	16	1,360	3	255	16	1,360	5	425	8	680	35	2,975	25	2,125	1	85	8	680
80.....	33	2,640	44	3,520	28	2,240	6	480	15	1,200	22	1,760	25	2,000	49	3,920	43	3,440	4	240	18	1,440
75.....	15	1,125	32	2,400	43	3,225	17	1,275	14	1,050	14	1,050	21	1,575	19	1,425	10	750	2	150	7	525
70.....	6	420	10	700	23	1,610	4	280	3	210	7	490	16	1,120	4	280	5	350	1	70	10	700

Statement of the Number, Class and Tonnage of Boats—Continued.

Tons.	1853.		1854.		1855.		1856.		1857.		1858.		1859.		1860.		1861.		1862.		1863.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
65.....	3	195	1	65	2	130	....	.....	1	55	3	195	4	260	3	195	2	130	....	.....	....	.....
60.....	2	120	2	120	4	240	....	.....	3	180	18	1,080	8	480	2	120	6	360	....	.....	6	360
55.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	10	550	....	.....	....	.....	....	.....	....	.....
50.....	3	150	1	50	3	150	1	50	....	.....	7	350	1	50	2	100	2	100	2	100	5	250
45.....	....	.....	1	45	....	.....	....	.....	....	.....	1	45	3	135	1	45	....	.....	1	45	6	270
40.....	....	.....	1	40	....	.....	1	40	1	40	3	120	....	.....	1	40	1	40	....	.....	....	.....
35.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	1	35	....	.....	1	35	....	.....
30.....	....	.....	....	.....	....	.....	....	.....	1	30	....	.....	....	.....	....	.....	....	.....	1	30	9	270
25.....	....	.....	1	25	1	25	....	.....	....	.....	3	75	....	.....	....	.....	1	25	3	75	....	.....
20.....	....	.....	....	.....	1	20	1	20	....	.....	....	.....	....	.....	2	40	1	20	1	20	4	80
15.....	....	.....	2	30	1	15	1	15	....	.....	1	15	1	15	....	.....	....	.....	....	.....	....	.....
10.....	....	.....	....	.....	....	.....	1	10	1	10	1	10	1	10	2	20	....	.....	....	.....	....	.....
5.	....	.....	....	.....	....	.....	....	.....	....	.....	1	5	1	5	1	5	....	.....	2	10	1	5
2.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....
Totals ...	590	57,380	760	80,475	471	48,400	366	39,500	329	37,510	254	27,530	206	20,220	403	48,355	615	93,910	902	144,466	771	119,170

N. B.—An allowance must, of course, be made of such boats as have gone out of use.

Accurate accounts were made of the number of boats on the 1st of January, in the years 1847, 1853 and 1859, and resulted as follows:

January 1, 1847, whole number of boats 2,275
January 1, 1853, do do 3,401
January 1, 1859, do do 3,867

RATES OF TOLL

Established by the Canal Board on persons and property transported on the New York State canals, to take effect on the opening of navigation in 1864.

Provisions, &c.

	cts.	m.	fr.
1. On bacon, per 1,000 pounds per mile	0	1	0
2. On lard, lard oil, tallow and grease, per 1,000 pounds per mile	0	1	5
3. On salted beef, salted pork, butter, cheese, bran and ship stuffs, oil meal and oil cakes, per 1,000 pounds per mile	0	2	0

Iron, Minerals, Ores, &c.

4. On mineral coal, coal oil, brick and fire-brick, soda ash, ice, limestone, clay, earth, manure, pig and smelted copper, iron ore, copper ore, and bar and pig lead, going towards tide water	0	1	0
5. On foreign salt and foreign gypsum, the products of other states, per 1,000 lbs. per mile	0	2	5
6. On bloom, scrap and pig iron, iron bolts, broken castings, pot and pearl ashes, calcined plaster, fire-proof cement, bed plates for steam engines, plow castings and iron safes	0	2	0
7. On leached ashes, charcoal and petroleum or earth oil, per 1,000 pounds per mile,	0	0	5
8. On stove pipe and furniture for stoves, not cast iron, and barytes, per 1,000 lbs. per mile	0	3	0
9. On salt manufactured in this state, gypsum the product of this state, lime, sand and water lime, per 1,000 pounds per mile	0	1	5
10. On stoves and all other iron castings, except machines and the parts thereof, per 1,000 pounds per mile	0	3	0

Furs, Peltry, Skins, &c.

11. On furs and skins of animals producing furs, per 1,000 pounds per mile	0	3	0
12. On deer, buffalo and moose skins, per 1,000 pounds per mile	0	3	0
13. On green hides of domestic animals of the United States, per 1,000 pounds per mile	0	3	0
14. On imported raw hides of domestic and other animals, per 1,000 pounds per mile,	0	3	0

Furniture, &c.

15. On furniture, cabinet-ware and chairs, per 1,000 pounds per mile	0	3	0
16. On carts, sleighs, carriages, wagons, mattresses, mechanics' tools, looking glasses, willow ware and piano fortes, per 1,000 pounds per mile	0	2	0

Stones, Slates, &c.

17. 1, On wrought stone, per 1000 pounds per mile	0	1	5
2, On all stone, unwrought or partly wrought, stone for the manufacture of lime and slate, per 1,000 pounds per mile	0	1	0

Lumber, Wood, &c.

☞ * *Lumber* shall not be cleared by measurement when carried in a boat having other articles on board paying toll by *weight*, but such lumber shall, in all such cases, be also cleared by weight.

When a cargo is composed entirely of lumber, which can be cleared by weight or measure, the whole of such cargo shall be cleared by measurement or by weight, as the shipper or master may elect, and in no case shall a portion of any such cargo be cleared by measurement, and the other portion by weight.

18. On timber, squared and round (not including timber squared by sawing and hewing), per 100 cubic feet per mile, if carried in boats	0	6	0
19. On the same, if carried in rafts, per 100 cubic feet per mile	1	0	0
20. On lumber carried in boats, when weighed, per 1,000 bls. per mile viz:			
1. On white pine, white wood, cherry, bass wood, cedar, boards, plank, scantling, and all siding, lath and other sawed stuff, less than one inch thick, carried in boats (except such as is enumerated in rates numbers 22 & 35)..	0	2	3
2. On oak, hickory, beach, sycamore, black walnut, butternut, maple, ash, elm, fir, tamarack, yew and spruce	0	1	8
3. On hemlock	0	1	0
On lumber carried in boats, when not weighed, per 1,000 feet per mile, viz:			
4. On boards, plank, scantling and sawed timber, reduced to inch measure, and all siding, lath and other sawed stuff, less than one inch thick, (except such as is enumerated in number 22), tolls computed on surface measure; and all kinds of red cedar, cedar posts, estimating that a cord, after deducting for openings, will contain 1,000 feet per mile	0	6	5
5. On hemlock, per 1,000 feet per mile	0	3	0
6. On subs 4 and 5, if transported in rafts, per 1,000 feet per mile	2	5	0
7. On saw dust and empty barrels and casks, per 1,000 pounds per mile	0	1	0

		cts.	m.	fr.
	On empty barrels and casks transported in rafts, per 1,000 pounds per mile,	0	5	0
21.	On mahogany (except veneering) reduced to inch measure, per 1,000 ft pr mile,	0	5	6
22.	On sawed lath, of less than ten feet in length, split lath, hoop poles, rived hoops, hand pikes, rowing oars, broom handles, spokes, hubs, tree-nails, fellies, boat-knees, ship knees, plane stocks, pickets for fences, and stuff, manufactured or partly manufactured, for boxes, chairs, or bedsteads, hop-poles, brush handles, brush backs, looking-glass backs, gun stocks, plow beams, plow handles, per 1,000 pounds per mile	0	2	3
23.	On ships knees transported in rafts	0	5	0
24.	On rived hoops	0	2	3
25.	On staves and heading, shooks, stave butts and bolts not exceeding four feet and a half in length, transported in boats	0	1	5
26.	On the same, if transported in rafts, per 1,000 pounds per mile	0	5	0
27.	On shingles, carried in boats, per 1,000 pounds per mile	0	1	5
28.	On shingles, in boats, per M. per mile	0	0	5
29.	On the same, if conveyed in rafts, per M. per mile	0	4	0
30.	On split and round posts (not exceeding eight feet in length), and rails for fences (not exceeding fourteen feet in length), per M. per mile, carried in boats	3	0	0
31.	On the same, if conveyed in rafts, per M. per mile	8	0	0
32.	On wood for fuel, and tan bark, per cord per mile	0	5	0
33.	On the same, if transported in rafts, per cord per mile	2	0	0
34.	On wood used in the manufacture of salt, per cord per mile	0	5	0
35.	On sawed stuff for window blinds, not exceeding one-fourth of an inch in thickness, and window sashes and blinds, per 1,000 pounds per mile	0	7	0
36.	On tan bark, ground, per 1,000 pounds per mile	0	2	5
	Agricultural Products, &c.			
37.	On clover seed, grass seed, and dried fruit, per 1,000 pounds per mile	0	4	0
38.	On domestic distilled spirits and hops, per 1,000 pounds per mile	0	2	0
39.	On wool, domestic cottons and domestic woolens, per 1,000 pounds per mile	0	2	0
40.	On cotton, per 1,000 pounds per mile	0	1	0
41.	On live cattle, sheep, hogs, bones (except for manure) and rags, per 1,000 lbs. per mile	0	2	0
42.	On bones for manure	0	1	0
43.	On horses (except those used exclusively for towing boats or other floats) per 100 pounds per mile	0	3	0
44.	On horses used exclusively for towing boats and other floats, exempt from toll.			
45.	On hemp and tobacco, going towards tide water, per 1,000 pounds per mile	0	1	0
46.	On flax seed, apples and potatoes, per 1,000 pounds per mile	0	2	0
47.	On corn, corn meal and oats, per 1,000 pounds per mile	0	2	5
48.	On flour, wheat, barley, rye, peas, beans and junk, per 1,000 pounds per mile	0	3	0
49.	On onions, turnips, all other esculent roots, pressed hay and pressed straw, per 1,000 pounds per mile	0	1	0
50.	On all other agricultural productions of the United States, not particularly specified, per 1,000 pounds per mile	0	3	0
51.	On tobacco going from tide water, per 1,000 pounds per mile	0	1	5
	Merchandise.			
52.	On sugar, molasses, coffee, iron in bars, bundles and sheets, steel, boiler iron, nails and spikes, horse shoes, bridge iron and railings, gas and water pipes, railroad chairs, crockery and glass ware, flint and enamel ware, tar, turpentine, leather, per 1,000 pounds per mile	0	1	5
53.	On merchandise enumerated and iron enumerated, going from tide water	0	1	5
54.	On railroad iron, per 1,000 pounds per mile	0	2	0
55.	On agricultural implements, sulphuric acid, carboys, car axles, car wheels and varnish	0	2	0
56.	On powder, gun-powder, demijohns, trees and shrubbery, per 1,000 pounds per mile	0	4	0
	Articles not Enumerated.			
57.	On all articles not enumerated or excepted, going towards tide water, per 1,000 pounds per mile	0	3	0
58.	On the same going from tide water	0	1	5
	Boats and Passengers.			
59.	On boats *used chiefly* for the transportation of passengers upon *all canals* per mile	4	0	0
	On the same, if they elect to commute for tolls upon passengers	3	0	0
60.	On boats *used chiefly* for the transportation of property, per mile	2	0	0
	On the same, if they elect to commute for tolls upon passengers	2	3	0
61.	Boats registered before July 1st, 1862, whose bows do not conform to regulation No. 40, per mile	3	0	0
62.	On all persons over ten years of age, per mile	0	0	5

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